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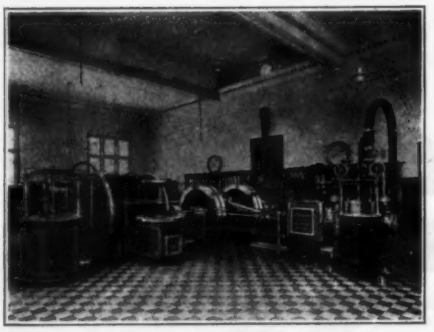

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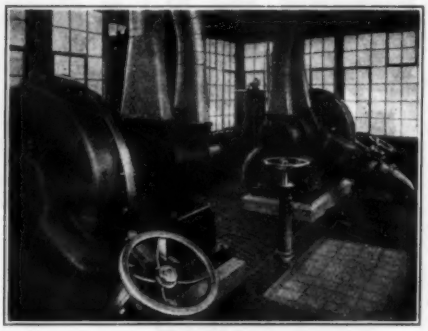

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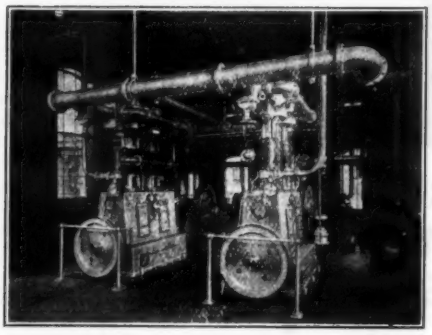

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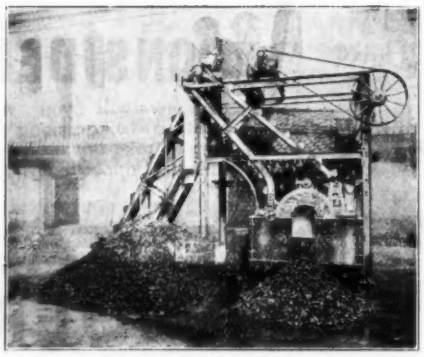

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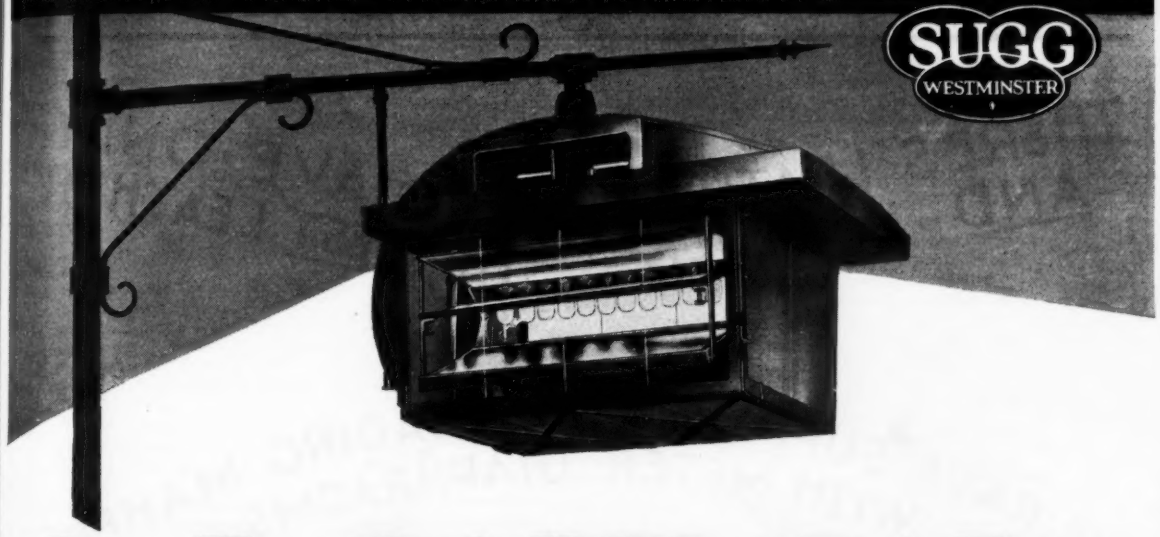

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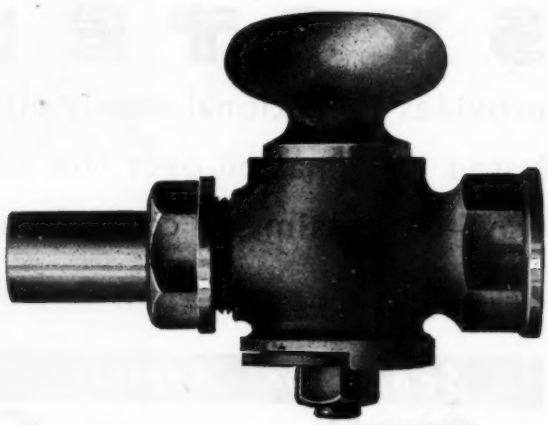

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CONTENTS

EDITORIAL NOTES.

Creosote 497
The Coke Market 497
A Growing Demand 497
Drive and Direction Needed 498
Changed Circumstances 498
The Burden of Local Taxation 498
The Machinery of Assessment 499
"Plug in to Gas" 499
Gas at the B.I.F. 499

Correspondence—
Holding Companies and the Gas Industry 500
Stockholders and the Industry 500
"A Products Industry" 501
Personal—
A Tribute to Mr. W. E. Price 501
Presentation to Mr. Harold Shewring . . 501
Obituary 502
Institution of Chemical Engineers—Annual Dinner and Meeting 502
Forthcoming Engagements 502
News in Brief 503
Amalgamation and Grouping—
Severn Valley and Tetbury 503
Midland Junior Gas Association—
Visit to Bilston 504
Health Week Gas Exhibit at Gloucester . . 504
Safety Publications 504
The Gas Industry in the Isle of Man—Douglas Company's Centenary 504
New Showrooms at Harpenden 504
New Screening and Grading Plant at Leamington 504
All-Rubber Joint for Gas Mains 505
Yorkshire Junior Gas Association 505
United Kingdom Gas Corporation, Ltd.—A New Holding Company 505
A Severe Test 505
Gas Production in Switzerland in 1934 . . 505
The British Industries Fair: A Review of the London Sections 506
Treatment and Discharge of Effluents—Paper before the Institution of Sanitary Engineers 507
Book Reviews—
Metallurgy—New Edition of Elementary Text Book 507
A Technical and Scientific Encyclopædia . 507
British Chemicals and their Manufacturers —1935 Edition 507
Social and Athletic Activities—News from all Quarters 508
Continuous Carbonization—An Interesting Woodall-Duckham Publication 508
Large-Scale Gas Equipment at the Cookery and Food Exhibition 509
Briquetting Pitch 510
The Hameln Plant for Rendering Gas Non-Poisonous 510
London and Southern District Junior Gas Association—
Sales of Gas and the Basis of Charges. By P. F. Scarth 511
Commercial Gas Company—
Ordinary General Meeting 519
Extraordinary Meeting 519
Wandsworth and District Gas Company—
Annual General Meeting 519
Extraordinary General Meeting 521
Tottenham and District Gas Company—
Annual General Meeting 522
Croydon Gas Company—Annual General Meeting 524
Gas Undertakings' Results for 1934 . 525, 529
South Suburban Gas Company—
Annual General Meeting 526
Extraordinary Meeting 527
Notes on Plant and Processes—
A New "Sugg" Lamp 532
An Attractive "High Beam" Setting . . 532
New Gas Lighting Glassware 532
A Novel Cooker Display Piece 532
Two New Clarkhill Models 532
Trade Notes 533
Gas Markets and Manufactures—
Stock Market Report 534
Current Sales of Gas Products 534
Contracts Advertised To-Day 534
New Capital Issues 534
Ewart & Son, Ltd. 534
Production of Benzole in the Saar 534

Stock and Share List 535

For Advertisers' Index see End of "JOURNAL"—PAGE 541.

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Gas Journal

FEBRUARY 27, 1935

Vol. 209. 87th Year No. 3745.

Editorial Notes

Creosote

During 1934 the selling price of creosote hardened from 3d. to 4½d. a gallon. On the London Market the quotation is now 5d. to 5½d. In recent issues of the "Journal" we have advanced reasons for the firm tone of the creosote market, and we have advocated that in selling this valuable product the Gas Industry's policy should be short-term contracts, that gas undertakings should keep a firm hand on the creosote they manufacture.

Imperial Chemical Industries, Ltd., are making great progress with their plant at Billingham for producing petrol direct from coal—the process which aroused general public interest in 1933 at the time when the Government guarantee of a preference on home produced petrol was made. The terms of the guarantee are well known to our readers.

We are most interested to learn that the first hydrogenation unit of the Billingham plant has been brought successfully into operation. This unit is engaged in converting coal tar creosote into petrol.

The Coke Market

"Coke and breeze are very satisfactory, the revenue having gone up by some £180,000. This is due to the larger quantities made and also to an improvement in price. We sold 1,283,121 tons—another record in the Company's history." This quotation from the speech of Sir David Milne-Watson to the shareholders of the Gas Light and Coke Company intrigues us very much indeed. "We are continuing the comparatively recent policy of leaving a definite amount of gas in the coke instead of driving it all out by a process of complete carbonization, and it is found that the loss of gas-yield is more than compensated by the increased value of the coke." This, from the Address of Dr. Charles Carpenter, as President of the South Metropolitan Gas Company, is also highly interesting. In spite of the considerable reduction in the amount of coke sold, the revenue obtained was substantially increased. Then, if we turn to the past year's working of the Commercial Gas Company, we find that, due to better make per ton and better price, coke fetched considerably more than in 1933, and this again in spite of the reduction in the sales of gas.

In view of our expressed opinions of the value of the coke market to the Gas Industry, the foregoing results are particularly gratifying. We have emphasized, and we stress again, that the Gas Industry, if it intends to extend the use of gas by lowering the cost of the gaseous therm, should look upon itself as a Products Industry. Future progress, we are convinced, lies in this direction. Both the Gas Light and Coke Company and the Commercial Gas Company show a high figure for the coke made for sale per ton of coal carbonized. Surely these results—and we could quote others from the year's working of other undertakings—demonstrate that effort in preparing good coke and marketing it efficiently is well worth while. As we see it, we are merely tapping an enormous field, definitely a revenue producing field. As an Industry we are selling only approximately 7,600,000 tons of coke annually, of which the most recent available statistics show that a matter of 800,000 tons was exported. The potential market is at least 40 million tons in the domestic field alone, and we are replying to the challenge by selling less than 7 million tons.

A Growing Demand

There is a growing public demand, as we have been at pains recently to point out, for a smokeless solid fuel for water heating, central heating, and the open firegrate. In regard to the open firegrate, for example, Mr. Henry Woodall stated in his Address as Chairman of the Tottenham and District Gas Company that his Undertaking had fixed more than 3,500 coke burning grates during the past year—a figure indicative of the increasing appreciation on the part of the consumer of the economy and satisfaction to be gained by burning coke. The demand is growing, and we are convinced that the rate of growth can be greatly accelerated if we tackle the problem with greater knowledge. A few weeks ago we called attention to the excellent move made by the London and Counties Coke Association to accept gas undertakings in the provinces outside its area as affiliated members of the Association. This is a step in the right direction which we hope will have full measure of support. Whither, we ask, do the 7 million tons of gas coke sold yearly in this country go? What proportion is used for domestic water heating; what amount for the open firegrate; what quantity for industrial purposes? Again, what are the proportions taken by the various industries comprising the indus-

trial load? As a beginning in meeting the coke marketing problem in the Gas Industry, with the aim of extending the use of gas at a cheaper price, surely every undertaking should ascertain without loss of time how the coke sold is divided into the various categories of use. There is a need for individual effort, and this individual effort must be complemented by the work of a National Coke Association.

Drive and Direction Needed

We want more drive and more direction in handling coke sales. The housing problem alone calls for immediate attention from the point of view of coke sales as well as of gas sales. What provisions for domestic hot water supply are to be made by the builders of the hundreds of thousands of homes likely to be erected during 1935? It can, we think, safely be said that as far as the South of England is concerned, where solid fuel is to be used coke boilers will form an integral part of the equipment. But conditions in the North of England are very different from those obtaining near London. Dwellers in the North have been brought up to the use of cheap household coal and the "back boiler." How are we going to approach this particular phase of the problem? Are we going to stress the obvious merits of a self-contained water heating appliance, or are we going to produce a type of fuel which will burn satisfactorily in the so-called "all-purpose" grate, which provides for cooking, water heating, and room heating?

We suggest that a thorough self-examination on the possibilities of the coke market will reveal to the Gas Industry a state of ignorance which it will not wish to tolerate. As a first step towards better sales, we urge economic research by individual undertakings and by a National Coke Association. We must find what we want, and how to get it.

Changed Circumstances

Steadily we are getting through once again the company meetings which bring into prominence the results of the work of the Gas Industry during another twelve months, and the reports of the proceedings call for careful study. Gone are the days when chairmen of gas companies were called upon—in most cases, not once a year, but twice—to unfold to modest gatherings of shareholders a calm, unruffled tale of normal increases in business upon stereotyped lines. Life has become altogether more complicated, and the gas business with it. "Once upon a time," the preparation of the quarterly gas account formed periodically the great excitement of the gas official, and its receipt, along with numerous other demands for goods supplied or services rendered, was too often seized upon by the consumer as an excuse for another grumble. Now all this has been altered. We have prepayment and deferred payment, and even the quarterly account is beset by one of monthly duration. We have units and tariffs, and are going to have more. We have competition, some of it fair. Thus it comes about that the report of a gas company meeting makes more engrossing reading to-day than was the case under more straightforward conditions.

From the weather point of view 1934 proved a disappointment. It fell short both as to rainfall and as to low thermometer readings—the latter characteristic, of course, heavily influencing gas consumption. But apart from this, very much that is satisfactory is to be gleaned from the records. One of these satisfactory features is the incessant demand for new gas-consuming appliances. The Metropolitan and Greater London Companies furnish surprising statistics in this connection. But even here we find ourselves up against added complication. To-day the demand is not merely for a cooker or a fire; it is for the more decorative, more elaborate, and therefore more expensive types of gas cooking and heating appliance which—thanks largely to the deferred payment and hire-purchase systems—the "discerning consumer" finds at his or her disposal.

Already in the "Journal" have appeared figures relating to the Gas Light and South Metropolitan Companies, and to-day we report fully the proceedings at the meetings of the Commercial, Wandsworth, South Suburban, and Croydon Companies. In the various cases gas totals range from modest decreases to equally modest increases—a fact which must be mainly attributable to special circumstances—but the dominating features are much the same in each instance. One of these features is the heavy demand for modern appliances, which is so gratifying because, as was remarked at the Commercial meeting, "it anchors the business to gas." True, the business is gained at greater cost than was formerly the case. Nevertheless, appliances are being fixed by the thousand, and even by the hundred thousand, and the purchasers, or hirers, are not having them for ornament. A tasteful and efficient appliance is all the time a "silent salesman" for gas.

Another feature of these reports affords an object lesson in one particular direction to which the attention of those engaged in the Gas Industry may be usefully drawn once again. It was emphasized a few months ago by the Board of Trade Return relating to authorized gas undertakings for 1933. When commenting upon this return in the "Journal," we remarked: "With a total number of consumers in 1933 nearly half a million greater than in 1931, the fact that the sales of gas were somewhat less in 1933 than was the case in 1931 is a matter to which considerable significance attaches. New consumers cost money, and when this cost is not countered by a corresponding increase in the all-round consumption of gas, it is unfortunate. A sure way to reduced prices is through an increased consumption of gas per customer." How this increased consumption is to be secured is the problem which those connected with the Industry must endeavour without ceasing to solve. One direction was indicated by Dr. Carpenter, when he said that the Commercial Company actually sold last year over 17,000 sets of lighting burners, while over the last five years they have disposed of 170,000. But if not lighting burners—then an appliance for some other purpose. Nowadays people spend less time at home than they once did, and far too many housewives have learned to "cook with a tin-opener." If the Gas Industry can do anything to correct these tendencies, it will have done far more than serve its own vast body of shareholders.

The Burden of Local Taxation

The great interest which any important rating decision arouses in the Industry is conclusive evidence that the burden imposed upon gas undertakers by local taxation is heavy.

The comments in our issue of Feb. 13 regarding the decision of the Court of Railway and Canal Commission in favour of the Southern Railway Company elicited a letter last week from Sir John Ferguson Bell which must express the thoughts of many of our readers. Many will agree with Sir John "that Public Utility Companies are taxed out of all proportion to other industries," and will also bear in mind the no less unhappy position of the trading departments of Local Authorities.

This inequality in the rating assessments of Public

Utilities as compared with other industries was increased when the gas, water, and electricity industries were denied the benefits of derating enjoyed by other industrial organizations with some of which the Gas Industry, at least, is in direct competition. Many suggestions have therefore been made from time to time as to the means whereby the severe burdens of local taxation could be mitigated. Applications in favour of an extension of derating benefits to Public Utilities have invariably fallen upon deaf ears. Such applications are never resisted, it is true, on any grounds of logic or justice, but are brushed aside on the plea of expediency. The money must come from somewhere, we are told, and from whom better than from Public Utility Undertakers? We would suggest that this argument, though perhaps flattering, is entirely and fundamentally unsound. Public Utilities no longer browse in the sweet pastures of monopoly, but are subject to fierce competition, particularly with foreign oil.

Failing derating, it is not unnatural that some, like Sir John Ferguson Bell, should have suggested that, as a means of obtaining relief, the profits principle should be abandoned in favour of a "simpler plan." It is hardly likely, we fear, that a percentage of divisible profits would be accepted, particularly having regard to the fact that the amount of profits to be divided depends upon the discretion of the Directors. It is also to be remembered that Income-Tax assessments do not involve any consideration of a hypothetical tenant, yet few would regard such assessments as simple.

The Machinery of Assessment

As against an alteration of the present system it is to be remembered that the Gas, Water, and Electricity Associations have repeatedly, and after the most careful consideration, affirmed their adherence to the profit basis of assessment. Not many years ago the Metropolitan Water Board fought a case to the House of Lords in order firmly to establish the principle, and since that date every attack upon the principle has been strenuously resisted. For instance, in recent months proposals in some respects contrary to the application of the system in Scotland have been rejected by the Industry. And if the present system is to be altered, there is the even more vital question as to what alternative system could be devised which would command substantial approval and at the same time allow for the necessary flexibility which the facts and circumstances of each individual case demand. If an equal rateable value was to be placed upon two undertakings, a substantial injustice might be done to one of those undertakings notwithstanding the fact that both of them sold the same amount of gas and obtained the same gross receipts. Further, any system could not be accepted without most careful consideration of its effect upon the Gas Industry as compared with a newer industry not at present carrying so heavy an amount of "tenant's capital."

While not wishing to be dogmatic on so complicated a subject, we rather suspect that the present *system* of assessing Public Utilities is reasonably sound, but that it is the *machinery* of assessment that requires amendment. While it would be difficult to ask that Public Utilities, alone of all other hereditaments in the country, should be allowed to dispense with the hypothetical tenant, it is reasonable and practicable to suggest that some considerable modifications should be made in existing procedure. As we pointed out in our last article, Public Utilities are much handicapped by reason of the fact that appeals from Assessment Committees lie to Quarter Sessions. Courts of Quarter Sessions have in the past tolerated departures from the orthodox system of assessment which have been rejected decisively by the Court of Railway and Canal Commission in the Southern Railway Appeal. The advantages of a National Appeal Tribunal should not be overlooked by Public Utilities, who will, even under the present system, gain much benefit from the decision given in the Railway case. In addition, coercive force should be given to the representations made to the Minister by the Central Valuation Committee that, where hereditaments extend into the areas of more than one Rating Authority, a cumulo value should be agreed and communicated to the undertakers before any question of apportionment arises. A reform of procedure on these lines is, in our view, the surest way to obtain some amelioration of the present excessive burden of local taxation.

"Plug in to Gas"

Plug and socket gas connectors for portable appliances are being installed by the thousand, and are proving a great convenience to the consumer. Like the switch, they are adding to the popularity of gas at a time when such a high premium is placed on convenience. This very convenience, however, makes it necessary for us to sound a note of warning. The plug and socket gas connector is, comparatively, in the early stage of its development, and it is essential to avoid a multiplicity of types. A large variety of connectors spells irritation and inconvenience to the consumer and will cause a break in the chain of service of which our Industry is so justly proud. This point is so obvious as to need no elaboration, and it calls for co-operation between the several constituent undertakings of the Industry and the manufacturers of fittings. An example of the chaotic state resulting from lack of co-ordination was provided by the electricity industry some years ago, when fittings simply would not fit. Standardization provided the remedy.

Quite definitely we must not duplicate this confusion in our own Industry, and there is no need for us to do so if we apply co-operative standardization—and apply it at once. The manner of standardization we require is as outlined by Mr. S. F. Dunkley in the "Journal" a few weeks ago. There is a real danger in standardizing everything and anything simply for the sake of standardization, and in cases where there is no real need for it. On no account must standardization retard invention or eliminate individuality. But we are impressed with the need for agreed uniformity on this question of plug and socket connectors for portable gas appliances. There has already been issued a British Standard Specification for such connectors, and we suggest that this should be observed until such time as it comes up for review. We are not asking for rigidity in the specification, for the whole principle underlying standardization must be flexibility; but we do ask for a measure of co-operation in what may appear perhaps a minor matter, but which, if it is allowed to drift, may well have a far-reaching adverse effect on the general public's goodwill towards gas.

Gas at the B.I.F.

For the first time for seven years our readers will not receive this year in February a "B.I.F. Number," containing details and illustrations of the Gas Industry's exhibits at the British Industries Fair. The reasons, of course, are well known—namely, that the Castle Bromwich Section of the Fair, at which the Joint Gas Exhibit

has previously been staged, has been postponed until May, a date which the organizers of the gas display have decided is totally unsuitable for the purpose.

While the decision not to exhibit at Castle Bromwich did not meet with entirely general approval by the Industry, it is satisfactory to know that several proposals were considered at the end of last year by the Joint Co-ordinating Committee with regard to the participation of the Gas Industry in exhibitions throughout the country. It was decided, as this is a matter in which all the National Bodies are concerned, that it should be referred to the British Gas Federation, with a request that it shall set up a Committee to deal with the matter. For the sake of those who are restive concerning the absence of the Gas Industry from the coming Castle Bromwich Fair, we look forward to a considered pronouncement by the B.G.F. on the whole subject, hoping that some scheme may be evolved from joint discussion capable of showing a better return for expenditure as far as the Gas Industry is concerned than the joint exhibit at the B.I.F., the primary object of which exhibition is, after all, to stimulate export trade.

In the meantime, therefore, we must be content with the part gas is playing at the London Section of the B.I.F. now running—and a very gratifying part it is. In addition to the excellent displays of the Gas Light and Coke Company and the South Metropolitan Gas Company in the Chemical and Allied Products Section at Olympia, to which we refer on later pages, gas is very prominent at the Textile and Furnishing Section at the White City. Here gas is not merely being displayed from a publicity standpoint, but is definitely fulfilling essential services in a manner which must appeal to the thousands of visitors to this section from all parts of the world, and thereby redound to the credit of the Industry.

Apart from the 1,500 gas fires and radiators in the halls and corridors and the huge gas-fired central heating installation, most interesting, perhaps, is the introduction for the first time of " floodheating " by means of radiant surface combustors. These heaters, of course, are ideal for this class of work, for, in addition to their very high radiant efficiency, they may be set on walls or standards, thus leaving valuable floor space free. Gas is also used for all the cooking at this section, as well as for the standby lighting of passages and exits and for water heating in the cloakrooms. It is estimated that fifteen million cubic feet of gas will be used at this section alone —a fine tribute to the service the Industry can render at such exhibitions. The only question is, " Has the Industry not been too modest as regards its services at the Fair? " The fires, radiators, and possibly the surface combustors are unmistakably gas to the layman; but does he realize that all the central heating, the provision of hot water in the cloakrooms, and even the very food he consumes at the Exhibition also depend upon this same medium?

CORRESPONDENCE

Holding Companies and the Gas Industry

SIR,—The decision of the Supreme Court of the United States of America on the gold clause cases will accentuate the suspicion, seldom absent from the lay mind, that neither clauses in agreements nor sections in statutes necessarily mean what they appear to say or even say what they are intended to mean. In our own country these questions also are often only determined after reference to our Supreme Court, while the decisions of this are not always so nicely calculated to preserve the *status quo*.

For those responsible for the conduct of undertakings the operations of which are limited by statute, this situation is not without its inconveniences.

In the absence of an authoritative legal decision, is anyone quite certain what powers were conferred on authorized gas undertakings by virtue of section (1) of the Gas Undertakings Act, 1932? The purport of the section is to give such undertakers a right to invest a limited amount of money in undertakings other than their own, and sub-sections (*a*) and (*b*) define the kind of undertaking in which investment may be made. Let us see what sub-section (*a*) says:

> " (*a*) carry on or are about to carry on, in any part of the United Kingdom, any process or operation of the same or substantially the same character as any process or operation which the undertakers are as such authorized to carry on."

What do the words " any process or operation " exactly mean? Are these words intended to mean only such processes and operations as are concerned in the manufacture and supply of gas and residual products? Or do they cover also the kind of operation performed on the Stock Exchange? And since the purchase and holding of shares is authorized by this section itself, would this make it lawful to invest in a company that does nothing but purchase and hold shares in other companies? If this be legitimate, then must the holding companies hold only shares in such undertakings as the investing company is itself authorized to invest in? It does not appear to be so, for the word " solely " contained in sub-section (*b*) is omitted from sub-section (*a*). But if there be no such limitation, is any holding company available for investment provided it holds at least one share in a gas company; no matter if (for instance) the rest of its holdings are in pepper?

The problem is not greatly different if holding companies that are nothing else are ruled out as inadmissible. In that case, would the legal requirements be met by a holding company with £1,000,000 capital owning a gas-works worth £5,000? Can investment be made in a West African Gold Mining Company if it operates a benzole plant in England?

The answers to these and other questions, for there are plenty of them, would not be very difficult to find if we could be sure that the sub-section means what it appears to say. But does it? If it does, it would be interesting to know if it says what it was intended to mean. Perhaps some day the House of Lords will set both doubts at rest.

Yours, &c.,

ARTHUR VALON.

5, *Victoria Street,*
Westminster, S.W. 1,
Feb. 22, 1935.

Stockholders and the Industry

SIR,—In the editorial pages of this week's issue of the " GAS JOURNAL " you once again refer to the part stockholders in the Gas Industry might play in furthering the cause. Therefore I feel that some of my views, expressed as concisely as possible, might be of interest to yourself and your readers.

I should make it clear at once by saying that I am a gas stockholder and have used all the influence at my command to encourage the use of gas, particularly for lighting, among those with whom I come in contact, and have been engaged sometimes in lengthy arguments, verbal and written. I am no doubt regarded in some quarters as a crank.

It is at all times difficult to trace results from the personal recommendation of anything, but I should say that little or no good has resulted from my efforts. But I do not wish to discourage others, quite the reverse; hence this letter.

Speaking generally, I think stockholders should be divided into two classes, with sub-divisions which may well be ignored for the present.

For our purpose there are two kinds of stockholders.

Class "A" are persons who seek the soundest investments for their capital, regardless of whether the particular kinds of business are antagonistic to one another or not, so long as they appear flourishing at the time and prospects are good. These people will invest their savings, or other sums, in concerns whose business it may be to supply gas, oil, or electricity for domestic and other requirements, quite independently of which of those three sources of light, heat, and power they themselves may use or prefer. They will have some holdings in rail or motor transport, beer and minerals, or even in newspaper concerns holding opposite political views, on the assumption that what one may lose the other will gain.

Now we come to our "B" stockholder group who take a lively and intelligent interest in some form of industry, commerce, or domestic economy, without being necessarily actively engaged in business of any kind, who will invest according to their personal taste, yet having the same regard for safety as the "A" people.

I must claim to be one of the "B" people, and never have been able to see through the spectacles of the "A" people; but surely the second group of investors is in a very small minority.

Now it is not of the least use for you, Sir, to expect the larger, or "A" group of stockholders, to help the cause at all. They will not press their friends to abate the smoke from their chimney, or to switch on the gas; nor will they encourage the use of stand-by plug-in lighting in lieu of candles should the electric light fail, which I believe has been known, or in any other way encourage them to do what they never do themselves.

Their own choice of light and heat will come to them, in the case of a new house, through the builder, architect, or agent, who will sheepishly follow the fashion of the district, or what he thinks "everyone is doing now."

When I was at the Annual Meeting of the South Metropolitan Gas Company the other day, I was rewarded for early attendance by hearing two prosperous-looking elderly ladies who from their conversation were obviously electrically minded, notwithstanding that they were gas stockholders, proved by their presence there, and had recently bought some electricity shares, upon which they were congratulating themselves. Quite a typical instance of the "A" type investor.

This incident set me conjecturing how many gas-minded and gas-using proprietors there were present.

Now to take things a little farther. I read "Quidnunc's" article with great interest, and do not think he has found an isolated case of a gas company director using electric light. I could give others, and I consider it is a practice which is very damaging to the Industry and an injustice to the people providing the capital. It should be rectified without delay.

To sum up: I consider that the psychology of stockholders is highly complex. It is difficult to convince people against the dictates of fashion. Not many years ago, in spite of the presence of the more modern forms of lighting in houses of good taste, it was the custom to light the dinner table with candles only. Few were the exceptions at that time. The fact that candles were rendered out of date years previously had no bearing on that craze, even the enhanced risk of fire had no effect; but it has changed, and candles have appeared in ever increasing numbers lately for emergency use occasioned by the vagaries of "Pretty Fanny." They are now to be seen everywhere as decorative adjuncts to the all-electric house.

That is a small instance of the trend of fashion; possibly something might happen again to popularize gas lighting with the majority, and if the wave was set in motion nothing would check its course.

Electric light is now fitted in new houses. The Gas Industry must not rest content with its present share of the lighting load.

The magnificent showrooms widely distributed over South London exhibit gas lighting—in addition to all the other domestic appliances—in all its æsthetic and artistic beauty in quantity and quality far beyond the dreams and imagination of all those who have not had the good fortune to see it for themselves; and I would urge all those readers of your excellent "JOURNAL," who have not already done so, to go and look at what can be achieved by modern gas lighting at the best, where those irritating gas and air adjustments are conspicuous by their absence.

Such displays as these will do much to convince the pig-headed of the advantages of gas and the superiority of our lighting. Also the efforts of "Mr. Therm" are far-reaching in bringing to the notice of the public the uses of gas in the home.

These realities and the campaign through the medium of the Press must be largely responsible for the great increase of appliances sold by the London and other companies recently.

The stockholder has a duty to perform, for the benefit of himself, his company, and his brother shareholders, and any effort to make him realize this is worthy of attention.

Yours, &c.,
R. V. E. DE B. CRAWSHAY.

Yacht Mamgu, Hythe Quay,
Maldon, Essex,
Feb. 23, 1935.

"A Products Industry"

SIR,—I should like to express to you my feelings of appreciation of the really excellent leaders that appeared in last week's "JOURNAL." The substance of the editorials seems to me to be of the greatest significance to the Gas Industry. You brought into focus the outstanding contributions to the subject, and obtained a balanced view of the whole situation which was most striking. I feel that such contributions will have the greatest influence upon the development of the Industry.

Yours, &c.,
F. S. SINNATT,
Director of Fuel Research.

Fuel Research Station,
Blackwall Lane, East Greenwich,
London, S.E. 10,
Feb. 25, 1935.

Personal

A Tribute to Mr. W. E. Price.

There has recently come to our notice, quite by chance, a story which concerns Mr. W. E. Price, who has for so long been Hon. Secretary of The Institution of Gas Engineers. Feeling certain that the Industry would be interested in hearing anything in appreciation of so old a friend, we have elicited—not from Mr. Price—details of a scheme to commemorate the esteem in which he was held by all ranks of his former employees at Hampton Court.

The idea was instigated by Mr. L. Turner, a gasfitter in the employ of the Company, whose original scheme was the presentation of an enlarged photograph of Mr. Price from the ex-service members of the Company—as they had previously done in commemoration of the late Mrs. W. E. Price, and the interest she had taken in sending them letters and parcels while they were at the front. But other employees who were not ex-servicemen asked to be allowed to contribute—which led to the idea of providing a technical library at the Works. Mr. Turner set about discovering how many would be prepared to subscribe small weekly amounts for two years towards this end, and no fewer than 88 immediately fell in with the scheme. They have now been subscribing since the beginning of April, 1934, and are continuing until April, 1936, and so far not a single subscriber has dropped out, while one or two have increased their contributions. The library has already been put into use, complete with a bookcase which the men have made themselves, and furnished with suitable books.

We are indebted to Mr. Turner for giving us these particulars, and we will add only part of the tribute which he pays to his former Managing Director. "He was a model employer," says Mr. Turner, "always fair in all his dealings, never forgetting the men under him. When he retired they lost the father of a large family, a man whose position, from their point of view, could but be hard to fill."

* * *

Presentation to Mr. Harold Shewring.

The Annual Dinner and Social Evening of the Chief Officials of the Rochdale Corporation was held at the Masonic Hall in Rochdale on Feb. 12. A most enjoyable evening was spent, and advantage was taken of the occasion to make a presentation on behalf of the officials to the retiring Gas Engineer and Manager, Mr. Harold Shewring, who, as stated in the "JOURNAL" for Nov. 28, was recently appointed to the position of Engineer and Manager of the Cambridge Gas Company.

The Town Clerk (Mr. W. H. Hickson) presided, and in making the presentation to Mr. and Mrs. Shewring of a handsome canteen of cutlery, referred in no uncertain manner to the esteem in which Mr. Shewring was held by his fellow chief officials. He also described the immense improvements which have been carried out under Mr. Shewring's supervision at the works of the Rochdale Gas

Department. A touch of humour was added to the proceedings by the Town Clerk's reference to Mr. Shewring's love of horse riding, and *àpropos* of this, a further presentation was made in the form of a paper-weight surmounted by a small bronze statuette supposed to represent the last horse left (a particularly decrepit animal) when motor transport had completely run the horse off the roads. Mr. Shewring accepted both presents, and thanked the officials for their presentation in a typically humorous speech.

* * *

Mr. G. F. DONALDSON, Distribution Manager of the Tunbridge Wells Gas Company, has accepted an appointment with the Sheffield Gas Company. Mr. Donaldson formerly served under Mr. Ralph Halkett, General Manager of the Sheffield Gas Company, while he was with the Glasgow Corporation.

* * *

A pleasant and unique ceremony took place at Brighton on Feb. 21, when Mr. C. H. RUTTER, M.Inst.C.E., who has recently retired from the position of Chief Engineer to the Brighton, Hove, and Worthing Gas Company, was entertained at luncheon by nine of his former pupils. Mr. D. L. Brown, Assoc.M.Inst.C.E., A.F.R.Ae.S., Chief Assistant at Portslade Works, was in the chair, and called upon Mr. J. H. Carrington, Mr. Rutter's first pupil, and now Chief Chemist to the Company, to propose the toast to Mr. Rutter. Mr. Carrington was supported by Mr. G. le B. Diamond, M.I.Mech.E., Engineer and General Manager to the Folkestone Gas and Coke Company.

* * *

Mr. GEORGE C. PEARSON, Engineer-in-Charge of the Windsor Street Works of the Birmingham Gas Department, has been elected to Membership of the Institution of Civil Engineers.

* * *

Mr. LESLIE E. FORTUNE, of Wibsey, Bradford, who is Civil Engineering Assistant at the Halifax Corporation Gas Works, has recently been elected an Associate Member of the Institution of Civil Engineers.

Obituary

His many friends in the Industry will extend their sympathy to Mr. F. R. SMITH, who only recently retired from the Board of Messrs. Parkinson & Cowan, Ltd., on the death last Sunday of his wife, after 53 years of married life.

Institution of Chemical Engineers

Annual Dinner and Meeting

The Annual Meeting and Dinner of the Institution of Chemical Engineers was held at the Hotel Victoria, London, on Friday last, under the Presidency of Mr. W. Macnab.

Speaking on the annual report and accounts, the Hon. Secretary (Mr. H. W. Cremer) remarked that, although there had been nothing of a sensational character, the past year had been one of steady progress and the membership now exceeded 800.

The Hon. Treasurer (Mr. F. A. Greene) spoke of the satisfactory nature of the accounts.

The report and accounts were then adopted.

The following was announced as the result of the ballot for officers and members of Council for the coming year:

President.—Dr. H. Levinstein.
Vice-Presidents.—Dr. W. Cullen; Dr. F. S. Sinnatt.
Hon. Secretary.—H. W. Cremer.
Hon. Treasurer.—F. A. Greene.
Members of Council.—W. A. Damon; Dr. G. W. Himus; J. W. Napier.
Associate Member of Council.—W. R. D. Manning.

Presentation of Medals for 1934.

In presenting the Osborne Reynolds Medal for 1934 to Mr. H. J. Pooley (General Secretary of the Society of Chemical Industry) the President specially referred to the enthusiasm with which Mr. Pooley had carried on the work of the Appointments Bureau of the Institution since its establishment in 1925 and the valuable services he had rendered to the Institution generally for so many years.

The Moulton Medal was then presented to Messrs. J. Davidson Pratt and G. S. W. Marlow for their Paper before the Institution entitled "Legal Pitfalls for the Chemical Engineer."

The Junior Moulton Medal and Prize were awarded to Mr. D. Gordon Bagg for his Paper "Determination of the Efficiency of a Multi-Stage Washer."

The Chemical Engineer and Industrial Recovery.

At the Annual Dinner, Lord Macmillan of Aberfeldy, proposing "The Institution of Chemical Engineers," said he confessed that the title of the Institution had rather puzzled him. At first sight the chemical engineer seemed a rather menacing combination. What sort of hybrid was the chemical engineer? However, the Institution, whose members combined both chemistry and engineering, was fitted to play an important part in our industrial recovery. The purpose of such an Institution as the Institution of Chemical Engineers was two-fold. There was first the technical function of promoting the art which it professed and to enable those engaged in this great branch of scientific work to meet together and exchange ideas and obtain all the benefits that may come from co-operation and association. Secondly, apart from the technical aspect, there was the educational side. The Institution set a very high standard of admission and he was happy to know that there were pleasing and friendly relations with the University of London, which had now passed from being merely an examining body and was becoming a great teaching institution in conjunction with the Imperial College of Science, King's College, and University College which were carrying on great developments in scientific training.

The President, Mr. William Macnab, responding to the toast, said the membership of the Institution was progressing satisfactorily but not rapidly, because the desire was to have quality rather than quantity. Nevertheless, those who had been associated with the work of the Institution since its commencement had every reason to feel that they were justified in starting a new corporate body. For the preparatory work the Institution was greatly indebted to the first President, the late Sir Arthur Duckham, and the first Hon. Secretary, the late Professor Hinchley. Commenting on the presence of official representatives of so many other societies and institutions at the dinner, the President remarked that there were few industries which could escape the chemical engineer although there were variations in the ratio of engineering to chemistry which was applied to different industries. The Institution was always delighted to co-operate with all other institutions and societies and to take joint action where this was thought desirable.

Forthcoming Engagements

March.

7.—MIDLAND JUNIOR ASSOCIATION.—Meeting and Paper by Mr. L. W. Hathaway.
9.—SCOTTISH JUNIOR ASSOCIATION.—Joint Visit to Mining Department, Heriot-Watt College, Edinburgh. Paper by Prof. H. Briggs.
14.—MIDLAND ASSOCIATION.—Meeting at Grand Hotel, Birmingham. Presidential Address of Mr. A. Roberts, of Hereford.
15.—LONDON AND SOUTHERN JUNIOR ASSOCIATION.—Meeting and Paper by Dr. F. J. Eaton.
16.—WALES AND MONMOUTHSHIRE JUNIOR ASSOCIATION.—Meeting at Newport. Paper by Messrs. H. Canning, Jnr., and J. Wilson.
16.—WESTERN JUNIOR ASSOCIATION.—Meeting at Bath.
20.—MANCHESTER AND DISTRICT JUNIOR ASSOCIATION AND YORKSHIRE JUNIOR ASSOCIATION.—Joint Visit to Sheffield.
20.—B.C.G.A.—Meeting of Executive Committee, 11 a.m.; Special Meeting of General Committee, 2.30 p.m.
22.—MANCHESTER DISTRICT ASSOCIATION.—Annual Luncheon, Midland Hotel, Manchester, 1 p.m., followed by the Annual Meeting, 2.30 p.m.
23.—SCOTTISH JUNIOR ASSOCIATION (WESTERN DISTRICT).—Annual Business Meeting. Paper by Mr. J. L. Crossley.
28.—SOUTHERN ASSOCIATION.—Annual General Meeting, Hotel Metropole, London. Presidential Address of Mr. E. L. Nicholas, of Guildford.

April.

4.—B.C.G.A.—Eastern District Meeting, Peterborough.
4.—MIDLAND JUNIOR ASSOCIATION.—Meeting and paper by Mr. F. H. Lesley.
5.—NORTH BRITISH ASSOCIATION.—Spring Meeting at Dunfermline.

News in Brief

Price Reductions for Jubilee Illuminations at Clitheroe have been authorized by the Corporation Gas Committee.

The Electric Robots in Halifax Road, Dewsbury, have failed and been out of action for more than five days, the traffic being controlled by the police.

We are Indebted to the Secretary of the Institution of Civil Engineers for a List of Members. The addresses in this edition have been corrected to Jan. 1, 1935.

Imports of Gas Coal into the Irish Free State during the past year only attained a total of 216,285 tons, as contrasted with 229,700 tons during the previous twelve months.

Following the Encouraging Results of a canvass, the Bridport Gas Company, Ltd., have decided to extend their mains for a distance of just over one mile to the village of Walditch.

Application is to be Made to the Ministry of Health for a floating loan sanction of £10,000 to cover the Walsall Gas Department's requirements for the laying of future mains and services.

The Midland Association will hold their Annual General Meeting on Thursday, March 14, at the Grand Hotel, Birmingham, at 2.30 p.m., when Mr. Arthur Roberts, of Hereford, will deliver his Presidential Address.

The Annual Meeting of the Manchester District Association of Gas Engineers will take place at 2.30 p.m. at the Midland Hotel, Manchester, on Friday, March 22, preceded by the Annual Luncheon at 1 p.m.

A Striking Index of Progress is furnished by the gas consumption figures of Messrs. Mavor & Coulson, Ltd., at their East Kilbride Works, which has risen from 1,585,200 c.ft. in 1929 to 4,262,000 c.ft. for the last full year.

A Fire Endangered One of the Gasholders of the Plymouth and Stonehouse Gas Company late at night on Thursday, Feb. 21, at Coxside, but the prompt measures taken by the Plymouth fire brigade averted any trouble.

The Directors of the European Gas Company have decided, subject to audit, to recommend a final dividend for the year 1934 at the rate of 3½%, making 6% for the year, free of income-tax. The dividends for 1933 were at the same rate.

Extensions at Ardrossan.—Ardrossan Town Council Gas Department is to lay a new 4-in. gas main and erect a new gasholder. The Department is also taking over the supervision and maintenance of the lighting of the Railway Company's premises in the Burgh.

A Breakdown at Fulham electricity generating station early on Sunday evening, Feb. 24, resulted in an area, stretching roughly from Parson's Green to Walham Green, being plunged into partial darkness for about half an hour. In several cinemas music was provided as a temporary entertainment and the halls were lighted by the auxiliary gas supplies.

A Visit was paid to the Blackburn Corporation Gas-Works at Greenbank, on Saturday, by over 70 members of the Blackburn Textile Society, who were conducted over the Works by Mr. E. B. Field, Works Superintendent, and his staff. The party were joined by Councillor R. R. Fielding, Chairman of the Gas Committee, and Mr. J. D. Ashworth, Engineer and Manager.

Among the New Companies registered in Scotland last week was the Caledonian Gas Corporation, Ltd., with a capital of £625,000, divided into 312,500 4½% cumulative preference shares of £1 each, 187,500 4½% preferred ordinary shares of £1 each, and 125,000 ordinary £1 shares. One of the objects of the Company is to acquire and hold shares in gas companies and undertakings.

So Popular have been the cookery courses for business girls, arranged by the Newcastle-upon-Tyne and Gateshead Gas Company, that the names of about 200 additional girls who wished to enrol have had to be held over until the next course. The new course was opened recently by Lady Morrison at the Connaught Hall, Newcastle, for 400 business girls from shops and offices in the city.

Leamington Public Lighting.—The Leamington Town Council have adopted the recommendation of the Watch (Lighting) Sub-Committee that £1,000 be provided in next year's rates estimates for new gas lamps, columns, automatic controllers, &c. The Sub-Committee previously inspected various experimental arrangements for improved lighting installed by the Leamington Priors Gas Company.

Nearly a Thousand People attended the practical gas cookery demonstrations and exhibition of gas appliances given by Miss E. Kirby of Messrs. Radiation, on behalf of the Watford and St. Albans Gas Company, at the Public Hall, Harpenden, last week. Miss Kirby also judged a children's cake-baking competition for which there were many entries. Prizes were given, and presented to the winners by Mr. W. F. Hillier.

The Edinburgh Gas Department, we understand, is shortly to undertake large-scale production of motor spirit from coal, and extensive plant will be installed at Granton Gas-Works for the purpose. Councillor Walter Muter, Gas Convener, states that the Department has been experimenting with the process for some time, and that, as a result of highly satisfactory tests, it has been decided to install extensive plant for the production of high-quality benzole for commercial purposes.

The British Standards Institution have issued recently their Half-yearly Handbook which includes the indexed list of current British Standard Specifications to Jan. 1, 1935. Sections showing the current list of B.S. Specifications, the new specifications recently issued, and those in course of preparation are followed by a complete subject index of 26 pages. Copies of the new Handbook (under reference C.D.5050) are available from the British Standards Institution, Publications Department, 28, Victoria Street, S.W. 1, price 1s. 2d., post free.

Cinema Audiences Sat in Darkness for an hour at Dorking on Saturday, Feb. 23, when, owing to a fault in the main grid system, the electricity supply to the town was cut off at 8.15 p.m. Lighting failed over the whole of that part of Dorking supplied with direct current. This comprises all but the outskirts. Most of the shops were about to close, and had to hurry out their last customers. The Dorking Hospital was not much affected, as it was near the patients' bedtime. The supply was renewed in parts of the district after an hour, but other parts were still in darkness two hours after.

The Addiscombe Gas Showrooms, recently opened by the Croydon Gas Company, were the means of demonstrating the great reliability of gas last Monday evening, when they formed the one brilliant "oasis" of light in the midst of a widespread electricity failure extending from Elmers End to Addiscombe. The new electric lighting system on the main Beckenham-Croydon road was out of action, while, save for the area fortunate enough to fall within the radiance of the gas showrooms' very fine exterior lighting, and for the occasional lights from shops whose owners have sufficient foresight to illuminate by gas, the whole of an important Addiscombe shopping centre and a large residential district were in darkness for about half an hour at a particularly busy period of the evening.

The Evolution of Gas Appliances is being demonstrated in a practical manner by the Birkenhead Corporation Gas Department in the Municipal Exhibition which is now being held. Of particular interest is a wrought-iron cooker, made in 1864, having the appearance of a solid iron box, which was in use in a doctor's house in Yorkshire until a few years ago. The 1865 models were lined with porcelain tiles, with a hotplate composed of raised iron studs. Another dated 1874 featured most ingenious plate racks fitted at the side of the oven. 1874 brought a sliding grill in a "back-aching" model only 2 ft. high, and during the following year the first cooker with a double-oven casing and removable grates arrived. Of particular interest to the lighting engineer is an early model of an automatic clock control used for street lighting. The first gas fire ever made is another interesting exhibit, its beehive shape and wire grating giving it an altogether quaint appearance. Fire geysers and washing machines of 70 years ago present a marked contrast when standing side-by-side with the most up-to-date appliances.

Amalgamation and Grouping

Severn Valley and Tetbury.

The Severn Valley Gas Corporation announce that the recent offer made to the shareholders of the Tetbury Gas Company, Ltd., has been accepted by holders of over 96% of the shares of that Company.

Midland Junior Gas Association

Visit to Bilston

About 80 members of the Midland Junior Gas Association visited Bilston on Feb. 16, and during the morning made a tour of inspection of the Enamelling Works of Messrs. John Wright & Co., Ltd. The party assembled at 11 a.m. and was received by Mr. J. Ivan Yates, who apologized for the unavoidable absence of the Managing Director, Mr. J. F. Davis. By the kind invitation of the Directors, lunch was served in the Works Dining Room.

In the afternoon the party, together with some of the members of the staff of Messrs. John Wright & Co., were conducted over the Works of the Bilston Gas Light and Coke Company (under the direction of Mr. H. S. Adams, Engineer and Manager), where an installation of Glover-West vertical retorts has recently been put into use. Members were afterwards entertained at tea by the Directors of the Bilston Company.

Health Week Gas Exhibit at Gloucester

Our photograph shows the stand of the Gloucester Gas Light Company in connection with the local Health Week Exhibition recently. The display created much interest, and was one of the features of the Exhibition.

Safety Publications

The Institution of Gas Engineers has received an offer from the Association of British Chemical Manufacturers to make available to its members the Safety Publications which are regularly issued to members of the Association.

The Association, with the co-operation of the Factory Department of the Home Office, has undertaken the issue, in two parts, of a set of Model Safety Rules for use in Chemical Works:

Part I.—Comprising the Safety Rules themselves in concise form.

Part II.—Comprising a more extended explanation of the objects of the Rules, the danger of non-observance, and methods of obtaining the desired results.

Of probably more direct interest to members of the Institution of Gas Engineers are the Safety Circulars and Safety Summaries, which call special attention to interesting or unusual accidents from which useful lessons can be learned. Information relating to the following subjects is included: Fire and explosion, poisonous gas or vapour or dust, corrosive materials, fire protection, first aid, &c.

A set of the above publications can be seen in the Library of the Institution of Gas Engineers or members may obtain copies from the Association of British Chemical Manufacturers, 166, Piccadilly, London, W. 1, mentioning this notice, at the following rates:

Model Safety Rules, Part I., 5s., post free.

Model Safety Rules, Part II., 1st section (fire and explosion risks), 1 guinea, post free. Further sections in compilation.

Safety Summary (quarterly), annual subscription 1 guinea, post free; single copies 5s. 6d. each, post free.

Safety Circulars, complete set to date (Nos. 1-72), 17s. 6d., post free; single copies 3d. each. Annual subscription (about 12 Circulars per annum) 5s., post free.

The Gas Industry in the Isle of Man

Douglas Company's Centenary

Despite the operations of a Government-subsidized electricity scheme, gas is booming in the Isle of Man, and the consumption is showing a steady and rapid increase. Last week an exhibition was staged by the Ramsey Gas Light Company at the Swimming Pool Ballroom and attracted thousands of people. This week the Douglas Gas Light Company, Ltd., are celebrating their centenary with a great exhibition at the Palais-de-Danse, Douglas. The band of the Scots Guards is playing daily, and the Douglas Company is confidently looking forward to making its centenary year a record one in the history of the Company.

Out of a population of approximately 20,000 the Douglas Gas Company supplies 7,000 consumers. The Company lately completed the laying of a new main right round the town to ensure adequate pressure being maintained on the outskirts as well as within close proximity to the Works.

In a single year this thriving concern supplies 160,000 gallons of tar for the Manx roads and 20,000 gallons of benzole. The plant for the manufacture of benzole is being extended, and it is hoped to double the capacity this year. The Company also manufacture most of the other well-known residuals such as naphthalene, ammonia, &c., and are even making scent.

The Douglas Gas Light Company is unique in being formed under an Act of the Manx Legislature especially passed to enable it to be formed. The Company was granted facilities for development, and it has not been backward in making full use of them. Its present sound condition at the end of its first century is largely due to the foresight and energy of its Engineer and Manager, Mr. A. R. Bisset, who has made the Manx-folk gas-minded, and the work he has accomplished will never be undone by any competitive element in the Isle of Man.

Ramsey's gas concern, together with its enterprising neighbour in Douglas, is rapidly developing, and a new carbonizing plant is to be installed, together with new condensers and washing plant. Like Douglas, Ramsey is letting no grass grow beneath its feet, and following the big "gas drive" in the Isle of Man this week, is justifiably hoping for a bumper year.

New Showrooms at Harpenden

We illustrate above an exterior view of the new showrooms of the Watford and St. Albans Gas Company recently opened at Harpenden. This Company now have twelve showrooms throughout their area of supply, and further premises are in course of erection at Welwyn Garden City and Hemel Hempstead. In connection with the opening of the Harpenden showrooms, a children's cake baking competition and cookery demonstrations were organized locally, there being 34 entries for the former, while nearly a thousand people attended the latter during the week.

New Screening and Grading Plant at Leamington

The use of suitable smokeless fuel in the home is a modern trend which the Leamington Priors Gas Company have long recognized. To improve the quality of their gas coke for use both in open grates and for general domestic heating the Company have recently installed new screening and grading plant which was erected by West's Gas Improvement Company.

There are to be four grades of coke available to the

consumer. It is estimated that No. 1 grade will be suitable for large boilers and manufacturing purposes generally, but for domestic appliances No. 2 and No. 3 qualities will be those generally required. For open fireplaces, No. 2 quality will be used, and for small central heating boilers No. 3 quality will be the correct grade. No. 4 grade will be suitable for small domestic hot water boilers, closed stoves, and kitchen ranges.

The whole plant is completely housed to prevent coke dust escaping to the atmosphere. That coke has not been more widely used in Leamington for these purposes in the past was due to the absence of suitable appliances for its combustion and of adequate preparation and grading of the coke itself. Both of these disabilities have now been removed, and the Leamington Priors Gas Company has been to the fore in a bold policy of costly development to provide the right fuel.

All-Rubber Joint for Gas Mains

Last week we had the opportunity of being present at a demonstration of a new rubber joint for gas mains which appears to have much possibility. As yet it is in the development stage, but experiments so far carried out are highly promising, and the joint is worth watching. The joint is distinguished by the use of pure rubber and the employment of a washer of rubber, latex serving as a cementing agent.

The joint demonstrated to us last week consists of a rubber "washer ring" inserted in the socket, which is grooved to take a rubber packing. The packing is then followed by another rubber ring, which completes the joint. On application the rings and packing are well smeared with latex, which acts as a lubricant for the insertion of the spigot, and, on drying, as a highly efficient binder. Its efficiency in this respect was well demonstrated by a pulling test on a joint made only twenty-four hours previously.

The making of the joint is a very simple matter and the spigot slides along the rubber rings and packing to come firmly to rest against the rubber washer. This washer, it was explained to us, takes care of any expansion strains of the pipe, and the joint as a whole has the merit of considerable flexibility. Another important claim is that the rubber insulates the pipe against electrolytic corrosion.

As we have said, this all-rubber joint is well worth watching. The inventor is Mr. A. S. Baxendale, Kiln Corner, Hythe, Kent.

Yorkshire Junior Gas Association

On Saturday, Feb. 16, the Association held a "short paper" meeting at Barnsley. The papers presented were by Messrs. V. J. J. Siddons (Barnsley), R. H. McCulloch (Sheffield), and A. Pickard (Knottingley), whose respective subjects were Steam Power, Ash and Moisture Contents in Coke, and an Air Bell Operator for Tully Plants.

Mr. Pickard explained that in September, 1933, a Tully patent air bell operator was installed at Knottingley, and that it has fully met all the advantages claimed for it by the makers. In the case of his Undertaking the advantages have been as follows:

(1) Maintenance of better temperature conditions giving higher gasification efficiency.
(2) Better quality gas due to more uniform temperatures.
(3) Reduction of labour costs to a minimum.
(4) Cost of power for operation has been entirely eliminated by utilizing the water for boiler feed purposes.
(5) More constant quality due to each run being partly up-run and partly down-run gas.
(6) Easier clinkering due to the regular proportion of down run more effectively keeping the clinker well down in the fire.
(7) Ease of adjustment of cycle.

United Kingdom Gas Corporation, Ltd.

A New Holding Company

United Kingdom Gas Corporation, Ltd., was registered on Jan. 25 as a private Company with a nominal capital of £100 in £1 shares, with the object of acquiring interests in gas undertakings and of carrying on, managing, and developing such undertakings.

They are also authorized to acquire interests in public utility undertakings generally, and to manufacture, sell, or supply gas for all purposes in any part of the world, and to carry on the business of a gas-works company in all its branches.

At an Extraordinary Meeting of this Company, held on Feb. 14, it was resolved that the undertaking be converted into a public company, and that the capital be increased to £1,500,000 by the creation of 500,000 4½% cumulative preference shares, 500,000 4½% preferred ordinary shares, and 499,900 ordinary shares of £1 each. The Directors are as follows: Mr. A. V. Hambro, Mr. R. B. H. Ottley, Mr. M. H. Tetley (a Director of the Imperial Continental Gas Association), and Mr. J. M. Whittington (a Director of the South-Western Gas Corporation). The Registered Offices of the Company are at 9, Clements Lane, London; the Solicitors, Messrs. Slaughter & May, of 18, Austin Friars, E.C. 2; and the Auditors, Messrs. Deloitte, Plender, Griffiths, & Co.

We understand that up to the present no property has been purchased or acquired by the Company.

A Severe Test

We are indebted to Messrs. Stewarts & Lloyds, Ltd., for the above photograph which bears ample testimony to the fact that, under abnormal conditions, "S & L" tubes can withstand a great deal more than may be fairly expected of them. A fire broke out at *The Times of Ceylon* building, Colombo, some time ago, following an explosion in the basement. An "S & L" galvanized wrought-iron pipe ran along the underside of the ground floor, which is seen at the top of the photograph. This pipe dropped down and was twisted, &c., by the intense heat which rendered the piping practically white hot. Despite this severe test, all joints remained sound.

Gas Production in Switzerland in 1934

In spite of the general crisis, gas production in Switzerland, as shown by following figures, showed an increase in the year 1934:

Output in 1934	8,950	million c.ft.
,, 1933	8,822	,, ,,
Increase	128	,, ,,
or	1·44%	

To the gas production of the Swiss gas-works there must also be added the deliveries from the Constance Gas-Works to the community of Bodensee amounting to 7,633,000 c.ft. so that in all a total of 8,958 million c.ft. passed through the mains of the Swiss Gas Industry last year.

Gas production (in millions of c.ft.) in the last fifteen years has developed as follows:

		Increase %			Increase %
1920	4,646	..	1928	7,163	.. 6·3
1921	4,641	..	1929	7,729	.. 7·9
1922	4,868	.. 5	1930	8,000	.. 3·5
1923	5,196	.. 6·7	1931	8,414	.. 5·2
1924	5,550	.. 6·8	1932	8,716	.. 3·6
1925	5,948	.. 7·1	1933	8,822	.. 1·2
1926	6,277	.. 5·6	1934	8,950	.. 1·4
1927	6 733	.. 7·3			

The British Industries Fair

A REVIEW OF THE LONDON SECTIONS

The Gas Light and Coke Company's Stand.

The London Sections of the British Industries Fair, at Olympia and the White City, opened on Feb. 18 and continue until March 1. There are several items of general interest to the Gas Industry.

As on previous occasions, the Textile and Furnishing Sections of the British Industries Fair are being held at the White City, and the thousands of visitors who attend this attractive spectacle have an excellent opportunity of seeing how effectively gas can be applied to the warming of a huge building with nearly two miles of stands.

No fewer than 1,500 gas fires and radiators in the halls and corridors are arranged singly or in batteries of four and six, looking most impressive, while there is also a large number of hot water radiators and two miles of central heating, including one of the largest mannequin theatres in the country. Potterton gas-fired boilers are employed for this; and it may be mentioned that twenty gas water heaters supply hot water in the cloakrooms.

From Christmas up to the time of opening the Fair a large number of Gas Light and Coke Company fitters were employed installing the many appliances, and an additional 6-in. steel main round the Machinery Hall extension was necessary to cope with the extra load. Eleven meters, from 3,000 to 15,000 c.ft. per hour capacity, are provided to register the 15 million c.ft. of gas which it is estimated will be burned during the eleven days of the Fair.

Gas "Floodheating."

"Floodheating" is a word which has been recently coined—and which we have used on one or two previous occasions—to refer to the type of heating provided by the Cox radiant surface combustor, whose application to space heating we described in some detail in our issue for Feb. 6. For the first time at this Fair—and as far as we are aware at any similar exhibition—twenty Cox's combustors are installed for floodheating. They are placed in the Wood Lane Entrance Hall on standards, and in the cocktail bar in the Machinery Hall. Situated several feet above the floor, these floodheaters throw beams of radiant heat upon people as they come and go, and so effective are they that they have, we understand, created considerable interest among visitors. At an exhibition of this nature, they have, of course, the great advantage of leaving valuable floor space free for exhibitors and buyers.

It almost goes without saying that gas is used for cooking at the White City both for visitors and staff, while gas lamps provide standby lighting over the entrances and exits as well as in all the corridors.

At Olympia.

At the Olympia Section of the British Industries Fair the Gas Industry is represented in the Chemicals and Allied Products Section by the Gas Light and Coke Company and the South Metropolitan Gas Company, who have adjoining stands in the Grand Hall.

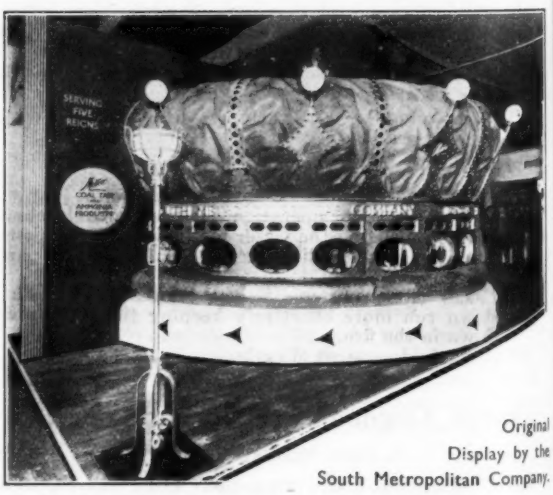
The displays of both these Undertakings are devoted to their various bye-products, and both exhibits are in different ways strikingly original in conception. That of the Gas Light and Coke Company sets out to good advantage samples of all the different products on glass shelves supported from attractive light wood cabinets, and illuminated in a novel manner from below by means of lights concealed inside the base of the cabinets and shining upwards through frosted glass panels. Among the products exhibited, both in sample display bottles, and represented in packages as prepared for delivery in quantities, are refined coal tars, tar emulsions, pitches, creosotes, cresols, phenol, naphthalene in various forms, benzene, toluene, xylenes, pyridine, sulphuric acid, ammonia, ferro-cyanides, spent oxide, &c., together with an example of prussian blue dyes, the production of which the Company are now developing.

On the back panel of the stand is a representation of a model gas-works, showing in relief the various bye-products plant, and complete with a background of a waterless gasholder. The whole illumination of the exhibit, indeed, is carried out by gas, by means of very pleasing chromium pendant fittings, in addition to lighting through the glass panelled "ceiling" of the stand. The effect is very pleasing and modernistic in general effect with its light polished wood display pieces set off in a colour scheme of green and cream.

A Jubilee Link-up.

The South Metropolitan Company usually set up an original exhibit; this year, in contrast to the Gas Light and Coke Company's "open" stand, they have adopted an exceedingly striking "closed" design, embodying a novel link-up with the present Silver Jubilee Year. This is effected by representing the whole stand as one half of a huge "bejewelled" golden crown, quite realistic in appearance, and carrying upon each of its projections a brilliant globe of light, these being gas lamps, of course.

Set in the interstices in the form of small windows round the "crown" are samples of the Company's products, including coal tar, ammonia, and others of a similar nature to those already mentioned. In addition are examples of the Company's special "Metro" main road tar, which has been produced with a view to offering a good lasting surfacing material for roads which are subjected to particularly heavy traffic conditions. Also exhibited are samples of "Metro" disinfectant fluid, black varnish, wood preservative, and the Company's solid smokeless fuels—coke, "Solarite," and "Coalite."



Original Display by the South Metropolitan Company.

Inside the "crown" is a comfortable information bureau, illuminated and warmed by gas, and complete with a handy gas smokers' set in chromium plate.

Treatment and Discharge of Effluents

Paper before the Institution of Sanitary Engineers

A Paper on "Effluents," presented by Mr. A. Sciver, B.Sc., A.I.C., to the Institution of Sanitary Engineers at its meeting at Caxton Hall, Westminster, London, S.W. 1, on Feb. 19, dealt with the treatment and discharge of effluents from domestic sewage and trade wastes. Among the effluents mentioned were such as are produced by gas-works.

One noted that Mr. C. F. Botley, the Chairman of the Liquor Effluents and Ammonia Sub-Committee of the Institution of Gas Engineers, was present at the meeting. Dr. A. Key took the opportunity to draw attention to the work of that Committee; and Dr. A. Parker, who is now with the Rivers Pollution Research Board, and whose work enables him still to maintain touch with the Gas Industry, also took part in the discussion.

Dr. Parker referred to some work carried out on the River Tees, where migrating salmon had been poisoned in the estuary as the result of the cyanide in coke-oven effluents discharged in different parts of that estuary. It was found that the best method of overcoming the difficulty was to alter the operation of the condensing and scrubbing plant—the effluent was derived from the scrubbing of coal gas—in such a way that the water was cooled and re-circulated, thus avoiding the discharge of any effluent.

Another method was to treat an effluent containing cyanide with spent pickle liquor arising from the process of galvanizing iron. This was a simple and inexpensive method.

The amount of oxygen in solution required for the maintenance of fish life could be stated only very approximately, because, apart from the differences between the various classes of fish, there were also differences between individual fish of the same species. One must take the average of a number of experiments on a number of fish in order to arrive at even an approximate figure. Again, the amount of oxygen required in solution was dependent on the composition of other constituents of the water, such as carbon dioxide; the fish would require more oxygen if there were a larger proportion of carbon dioxide in the water than if there were a smaller proportion of carbon dioxide.

Mr. Hillier (L.C.C.), dealing with ammoniacal liquor discharged from gas-works, asked what would be the inhibiting percentage, and whether it had an adverse effect upon activated sludge and upon sludge digestion in sewage works.

Dr. Key said that an impression which seemed to have been given by the author of the Paper was that phenols and tar acids generally might not only prove difficult to oxidize in the presence of bacteria, but might themselves prevent or retard the purification occurring in a stream or at the sewage works. Therefore, he asked, what was the basis of the author's information? His own experience was that surprisingly large quantities of phenol and other tar acids could be present in sewage without interfering with the oxidation occurring in activated sludge plant or bacteria beds or in river water. In fact, one investigator had claimed to grow bacteria in a phenol solution at a concentration of 500 parts per 100,000—which was a far higher concentration than one was likely to get in any gas-works effluent.

Mr. Sciver, in his reply to the discussion, said he was sure the method suggested by Dr. Parker for dealing with cyanide was efficient for the concentrations of cyanide usually found in liquors Dr. Parker had described; but his own experiments with liquors he had handled indicated that the treatment was not very effective. It was also the fact that some factories which produced such effluents had not a chemical staff. He had not yet been able to find methods which could be used without proper supervision.

Replying to Mr. Hillier's question concerning ammoniacal liquor, he said he had had experience of daily estimations extending over a period of seven years, in a sewage works taking liquor of that character. He had provided the man in charge with a method of obtaining an approximate estimation of the nitrates in the effluent, this being a fairly reliable indication of the way purification was going, and one which did not necessitate elaborate laboratory equipment. The liquor came down in rushes, and whenever there was a rush the curve for nitrates went down rapidly and did not recover for several days. It would pick up gradually, and then another rush would occur. Tanks were installed to equalize the flow, and it was found that the bacteria beds could be trained to take several per cent. of this fluid. Since then the curve had remained fairly horizontal, indicating a reasonable degree of nitrification. It was essential that the liquor should not come down in rushes and cause the death of organisms.

The problem of the effect of such liquors on activated sludge and sludge digestion was complicated. It was more than probable that these ammoniacal liquors would alter the colloidal nature of the sludges, and while in some cases they might increase the difficulty of treatment, they might in others improve matters.

Book Reviews

Metallurgy*

New Edition of Elementary Text Book

In preparing this new edition of "Metallurgy" the sequence of former editions has been maintained in order to develop the subject in a progressive manner, and the Author has kept in mind the importance of emphasizing first principles, thus securing the interest of the beginner, for whom the book is primarily intended.

The book provides the student with a work of moderate size, giving a clear and concise account of metallurgical processes, and the principles upon which they are based.

Some deletion and condensation of matter has been carried out in this new edition, and a considerable amount has been re-written and re-arranged. Large additions have been made in many sections in order to retain the comprehensive character of the original and to ensure that it will continue to appeal as an introduction of the subject to the practical man in industries dependent on metallic material. Notable additions appear in the chapters on the testing of metals, fuels, electrolytic processes, and foundry work, while in the new sections on pyrometry and metallography sufficient matter has been introduced to provide a basis for further study. This gives a clue to the manner in which the physical properties of metals depend on the internal structure, which, in turn, depends on the conditions of production and the treatment afterwards received. Much interesting matter dealing with developments in wet and dry processes for both base and precious metals has also been added.

A very comprehensive index greatly enhances the practical value of this useful work.

* "Metallurgy," by E. L. Rhead. New revised and enlarged edition; pp. 382, including index. Longmans, Green, & Co., Ltd.; 10s. 6d.

A Technical and Scientific Encyclopædia

An exceedingly useful book of reference is the new Technical and Scientific Encyclopædia published by Hutchinson & Co., and covering terms, processes, and data in pure and applied science, construction, and engineering, the principal manufacturing industries, and the skilled trades. The encyclopædia is edited by C. F. Tweeney and I. P. Shirshov, and there is an imposing list of principal contributors. This includes the names of Prof. J. W. Cobb, who deals with high-temperature and low-temperature carbonization of coal, and Mr. H. J. Hodsman, who was entrusted with the subject of gas manufacture. The work—and it is claimed to be the only one of its kind to be published during the past 25 years—has been specially planned to enable students, teachers, the learned professions, manufacturers, and skilled tradesmen to reach information and data they require very quickly. A working bibliography, naming several thousands of books and other information, is included. The encyclopædia is in three volumes and the price is 4 guineas. Single volumes are 28s. each.

British Chemicals and Their Manufacturers

1935 Edition

The 1935 Edition of "British Chemicals and Their Manufacturers" has just been published by the Association of British Chemical Manufacturers, 166, Piccadilly, W. 1, and since its previous issue in 1933 it has been thoroughly revised and brought up-to-date.

This book, which is published gratis and obtainable by genuine purchasers of chemicals by direct application to the publishers, gives buyers in all parts of the world information as to the products manufactured by members of the Association. It is printed in English and five other languages, and should be of special use not only to his Britannic Majesty's Commercial Attachés, Consular

Officers, and Trade Commissioners, but to the various Government purchasing departments throughout the world.

One of the objects of the Association is to promote and facilitate business relations between manufacturing and chemical firms all over the world and to encourage legitimate international trading conditions. The Association is prepared to advise on all matters relating to the chemical trade, and the intention is that an up-to-date edition of this directory shall appear every second year.

Social and Athletic Activities

News from all Quarters

Cardiff Company's Athletic and Social Club.

The annual report of the Cardiff Gas Company's Athletic and Social Club indicates a very satisfactory state of affairs, interest in the various sections of the Club having been maintained and extended by the inclusion of an additional association football team. The sections, actively functioning, include practically all branches of outdoor and indoor games, and successful seasons have been enjoyed by the cricket, harriers, tennis, bowls, association football, skittles, and air rifle sections.

Departmental competitions have been confined to bowls and skittles, which have proved to be popular. The Annual Sports Meeting was again an attractive feature. The H. D. Madden Cup Competition was secured by Grangetown Works.

Social events, including monthly whist drives in the winter season, the Annual Ball, and the Children's Annual Treat, have been most successfully catered for by the Entertainments Committee.

* * *

Gas Undertakings' Small Bore Rifle League.

The Hon. Secretary of the Gas Undertaking's Small Bore Rifle League sends us, from Bankside Works, Hull, the following League Table up to Feb. 1, 1935:

Team.	Shot.	Won.	Lost.	Drawn.	Aggregate Score.
Hull "A" . . .	9	8	1	..	5 276
Beckton "A" . .	9	8	1	..	5 254
Portsmouth . . .	9	7	2	..	5,256
Tottenham . . .	9	5	4	..	5,122
Cambridge . . .	9	3	6	..	5 095
Beckton "B" . .	9	3	6	..	4.338
Harrogas . . .	9	2	7	..	5,049
Hull "B" . . .	9	0	9	..	4.722

* * *

Gas Light and Coke Athletic Section.

Mr. W. J. Pepper presided at the annual general meeting of the Gas Light and Coke Company's Athletic Section last month, when he reviewed the activities of the Section during the past twelve months. Many members have during the year competed in outside competitions, and have met with varying success. He called attention to the fact that while most athletic clubs in the south find it extremely difficult to secure suitable training grounds, their own members have excellent training facilities at their disposal.

The results of the Western Bowls Club showed that twelve matches were won out of twenty-four. Congratulations were offered to Mr. A. Morgan on his selection to play for Middlesex against Warwick. Mr. Morgan also won, with his partner, the pairs of the London Welsh Bowling Association. On the rowing side, Mr. F. E. Moore (Brentford) won the Annual Sculling Handicap, rowed in gigs for the "A. A. Johnson" Challenge Cup.

* * *

Croydon Company's Sports Activities.

The Lawn Tennis Section of the Croydon Gas Company, according to the annual report, won 23 matches out of 34 during last summer.

Their Football Club is enjoying an exceptionally good season. Both teams are well in the running for league honours. The 1st XI. have played 16 matches and only lost 2, and their league record is played 7, won 6, lost 1, drawn 0; 33 goals for, 9 goals against. They have now entered the sixth round Surrey Junior Cup, and are still in the Wilson, Carshalton, and Surrey Charity Cups. The 2nd XI. have only lost 2 league games, and have drawn 1. Their record is played 9, won 6, lost 2, drawn 1; 22 goals for, 9 goals against. They have fared a little worse in cup ties, but are still in the Carshalton Hospital Cup. The Football Club's 1st XI. were successful in reaching the Divisional Semi-Final Round of the Surrey Junior Cup.

In connection with the Company's Bowls Club, reference is made to the formation of the London Gas Bowling Association, which has been started since the close of last season.

* * *

Hastings Co-Partners' Social Club.

This Club continues to be very active, and many social events have been arranged. The Co-Partners' New Year Party was held at the Pier Tearooms, and was followed by a visit to the White Rock Pavilion. On that occasion Mr. C. F. Botley made a presentation to Mr. J. Thomas, who had retired after 58½ years' service with the Company.

The Company's Children's Party was also very successful, 180 youngsters being entertained at a Pantomime followed by tea.

Continuous Carbonization

An Interesting Woodall-Duckham Publication

We are indebted to the Woodall-Duckham Vertical Retort and Oven Construction Company for a copy of a very useful and informative book which they have just issued dealing comprehensively with the "W.-D." system of continuous carbonization in vertical retorts.

During the past five or six years many improvements have been initiated and successfully applied by this Firm, and the present publication comprises an illustrated description of the system as it stands to-day. Among these developments special attention is directed to the upward system of heating in vertical flues which has replaced the former downward heating method, and which has already contributed to economical aud trouble-free operation in some fifty installations. Special note is also made of the introduction of breeze burning producers, which has proved an important financial advantage to gas undertakings. Further developments referred to in detail include improved arrangements for the feeding of coal, for the collection and spraying of gas and for coke extraction, and the application of supplementary producer gas firing to Woodall-Duckham waste-heat boilers.

On the historical aspect of continuous carbonization a section has been included outlining the progress and development of the "W.-D." system year by year since its inception in 1903. The first experimental retort in that year had a carbonizing capacity of 2½ tons per day. To-day, no fewer than 294 installations of Woodall-Duckham continuous vertical retorts are widespread in all the five continents. They are capable of carbonizing a total of 33,669 tons of coal and of producing over 550 million c.ft. of gas a day. One hundred and eighty-five cities and towns have adopted the system in gas-works of all sizes. Of the 294 installations, Great Britain and Ireland account for 190.

The new Woodall-Duckham book, with the aid of beautifully produced coloured diagrams and photographs of typical installations, sets out clearly the advantages claimed for the "W.-D." system, together with a detailed description of the plant, method of construction and heating, steaming, control of heats, coal feeding arrangements, and coke extraction.

The important subject of waste-heat recovery has a section to itself, wherein the main advantages of the full employment of waste heat boilers are discussed. In the early stages, waste-heat recovery by means of boilers was, we see, used in combination with a greater or less degree of recuperation whereby the waste gases were first used to preheat the secondary air before it was passed into the combustion chambers. The elimination of recuperation from the Woodall-Duckham system and the full use of waste-heat recovery by means of boilers was found to improve very considerably the relative efficiency of the system from both the thermal and economic standpoints.

Coke and coal handling, together with coke-grading equipment, are described in the book, while another section deals with typical installations of carbonizing plant for small, medium, and large works. Of particular interest is the section entitled "Milestones in the Development of the Woodall-Duckham Continuous Vertical Retort," which traces the developments from the time of introduction in 1903 to the present day, while in conclusion a complete list of "W.-D." installations the world over provides an interesting record.

We offer our congratulations to the Woodall-Duckham Companies upon the production of an extremely useful book of reference, and upon the dignified, yet modern and entirely attractive, presentation of their story.

LARGE-SCALE GAS EQUIPMENT AT THE Cookery and Food Exhibition

Gas, appropriately, is well to the fore at the Thirty-Fourth Universal Cookery and Food Exhibition which was opened at the New Royal Horticultural Hall, Westminster, on Monday.

A very fine display has been staged at this Exhibition by the Gas Light and Coke Company, a central feature of whose exhibit is one of Benham & Sons, Ltd., "Solid-Top" gas cooking ranges, for hotel and restaurant work. This introduces the new "Chefs'" burner, which is an extremely powerful unit embodying three individually-controlled burners directing the gas flame on to a conical shaped refractory centre piece, producing an intense heat into which culinary vessels with rounded bottoms may be lowered—right into the hotplate—without interfering with the combustion of gas. The appliance may be built up in units, but the model exhibited has two front sections with "Chefs'" hotplate burners and ovens, and rear sections respectively consisting of standard burners, and open-flame top, with two more similar ovens—all the ovens being externally heated, with thermostatic control if required. The "Solid-Top" boiling tops embody fins on the underside, which prevent warping and promote graduated heat on the surface, it being possible, in fact, to boil quite easily on the extreme outside edge of the plate with the "Chefs'" burner. A grill can be incorporated, if desired, in the open-flame top.

The "Solid-Top" range is claimed to provide the chef with the type of stove he wants, and the proprietor with an appliance reasonable in first cost, inexpensive to run, and clean in operation. The apparatus may be obtained in black finish with white enamel doors and end panels, with chromium-plated taps, or in mottled porcelain enamel.

A New Vegetable Steamer.

Another appliance recently introduced by the same firm is also shown on the Gas Light and Coke Company's stand, this being a vegetable steamer, entirely self-contained, operated with an internal steam pressure of half-a-pound per square inch. It is fitted with a thermostat and an automatic device to maintain a constant internal steam pressure. The principal advantage claimed for this pattern of steamer, as compared with the "atmospheric" type, is quicker cooking with very much less gas consumption. The interior is of tinned copper, and five aluminium trays are provided. The new method of door fastening safeguards the operator, by reason of its gradual release, from the sudden blow-off of steam from the apparatus on opening.

Also shown on this stand is a twin-unit model gas-operated refrigerator with wood exterior for large-scale commercial use, and a three-unit gas griller embodying the radiant gas combustor principle of heating.

Water heating by gas has a section to itself. There are different types of water-heaters, each planned to deal with particular aspects of the problem. These models work automatically and look well in a clean enamel finish with chromium fittings. An "Ideal" unit for central heating and hot water supply is included, complete with automatic room control. A Jackson's café set for constant supply of boiling water for coffee, tea, and other hot drinks at the restaurant counter is another example of gas equipment that has been specially planned to help the catering trade.

Room Warming.

Sections on room warming show some of the new "Porteullis" gas fires in attractive surrounds. A small built-in cupboard above the fire, specially made to hold the meter, solves the problem of concealing the meter in such a way that it is at the same time easily accessible.

The Bremner Autoclock gas fire control, which has previously been described in the "JOURNAL," is also shown. This is a clock device for recording the length of time a gas fire has been in use. Each time the fire is used, the turning of the gas tap starts the clock which checks how long the fire is burning. As soon as the gas is turned off, the clock automatically stops until the fire is used again. The dial reading starts at 0 and will register the total number of hours any fire has been burning up to fifty hours, after which the clock has to be re-wound.

The charge per hour is shown on a card. This is a perfectly straightforward way of letting people know how much they are spending on warming the room. It is small and compact and does not need to be hidden away, and no money is needed; but no gas can be used without registering the corresponding charge.

Gas Cookery Demonstrations.

A special gas cookery lecture theatre has been set up at the Exhibition, in which demonstrations are given three times daily by members of the Women's Advisory Staff of the Gas Light and Coke Company. All classes of domestic gas cookery are covered, and recipes are given to the audiences. It is interesting to note that glass-fronted oven doors are largely used for these demonstrations, which are under the supervision of Miss E. Willans, M.B.E., G.C.A.

Some Carron Exhibits.

The Carron Company, of Carron, Falkirk, also exhibit many of their interesting specialities. In their double oven gas range, each oven is double-cased and packed with non-conducting material and porcelain-enamelled lined inside with steel sheets. The hotplate has a good assortment of boiling and simmering burners, each controlled by separate brass taps having the gas and air adjuster mounted on a wrought-iron feed bar along the front.

Finished in mottled enamel with white panelled doors, the Carron gas-heated central range presents a smart exterior. The range measures 6 ft. 2 in. wide by 3 ft. 6 in. deep by 2 ft. 8 in. high overall, and has four externally-heated ovens with fire-brick sole embedded on a cast plate. The ovens have "fall-down" doors fitted with special spring counterbalance arrangements to check the fall. A griller that toasts 25 rounds of bread in under two minutes and a gas-heated steaming oven are other noteworthy features of this exhibit.

The firm's gas steaming oven, also shown, has a cast-iron outer casing and copper inner lining with galvanized hangers and five galvanized perforated trays. The cast-iron side-hinged door is rendered steam-tight by means of rubber packing and four-way slip bolts.

Altogether, gas has a very representative showing at this Exhibition, and demonstrates to the full the essential part it plays in the important catering industry.

Three Million Domestic Servants.

Speaking at the opening of the Exhibition, Sir Francis Goodenough, C.B.E. (Executive Chairman of the B.C.G.A.), said: "I represent an Industry that has played and is playing a notable part in bringing about that improved cooking through making available in literally millions of kitchens in these islands, from palaces and palatial hotels and restaurants to the homes of the great mass of the workers—through the penny-in-the-slot meter—a means of cooking that saves drudgery, dirt, and dismalness, and increases certainty, flexibility, and reliability of service; and has, without any exaggeration, revolutionized home life from one end of the country to the other.

"When we add up all the human energy that is saved by using gas instead of raw coal, the saving of 'woman-hours' is equal to the work of three million domestic servants.

"I have heard it said that the standard of home cookery has declined. But from my own experience the standard is rising again. The housewife of the future is going to take her job seriously."

Briquetting Pitch

According to W. Reerink and E. Goecke, *Glückauf*, 1935, 71, 77-85 and 105-114 (Jan. 26 and Feb. 2), viscosity is the chief factor of importance in connection with the use of briquetting pitch. Two forms of apparatus are described for the measurement of the viscosity of pitch. A rotating cylinder method is employed for the determination of absolute viscosity at temperatures between 70° and 100° C. For the comparison of the viscosities of different pitches at 100° C., the time required for a sinker to be pulled a definite distance through the molten pitch, by a counter-weight passing over a pulley, is measured.

The technique of using the experimental briquetting plant described by Broche and his collaborators (see "JOURNAL," 1933, 202, 109) has been modified with a view to the possibility of preparing a large number of briquettes under uniform conditions. The improvement consists in adding the coal-pitch mixture to the kneading machine progressively in amount equal to that withdrawn for the preparation of a briquette. Hence, when a weight corresponding with the initial charge has been run through, succeeding briquettes will have had the same thermal and mixing treatment.

It has been found that that pitch is most suitable for briquetting purposes which has the greatest fluidity at the temperature prevailing in the kneading machine and which thus affords the maximum possibility of securing intimate mixing of the pitch and coal. On the other hand, the pitch should have a narrow fusion range so that the briquette may harden quickly on removal from the mould. An upper limit is only set to the softness of the pitch in view of the necessity that the latter should be readily pulverizable.

With a given pitch and varying temperatures in the kneading machine, the strongest briquette is obtained at the highest temperature, or in other words, the strength of the briquette increases as the viscosity of the pitch decreases. Similarly, with a given kneading temperature and a series of pitches, the strength of the briquette increases as the viscosity of the pitches decreases. If kneading temperatures are so chosen that the different pitches have the same viscosity, the strengths of the briquettes are equal. The behaviour of blown pitches is anomalous in that the strength of the briquettes is lower than would be expected from the viscosity of these pitches. The reason for this has been traced to the loss of oils which blown pitches suffer under the action of steam in the kneading machine. This leads to an increase in their viscosity.

For briquetting and kneading, 100° C. may be taken as the normal temperature. The best pitches have, at this temperature, absolute viscosities not exceeding 0·2 gm. sec./cm.^{2} and yield briquettes with a crushing strength exceeding 256 lbs./sq. in. If, however, the viscosity is below 0·05 at 100° C., the pitch will be too soft to grind. In the viscosity range 0·2 to 0·4, the strength of the briquettes ranges from 227 to 256 lbs./sq. in. and pitch with this viscosity is still serviceable. When the viscosity of the pitch is between 0·4 and 0·6, the strength of the briquettes lies between 199 and 227 lbs./sq. in. and the pitch cannot be regarded as satisfactory. If the viscosity at 100° C. exceeds 0·6, the pitch is quite useless for briquetting purposes.

The relationship between temperature and logarithm of absolute viscosity is found to be a linear one for pitches. In the sinker form of apparatus, the relationship between the time of rise of the sinker and the absolute viscosity of the pitch is also linear. A time of 0 second corresponds to zero viscosity and a time of 210 seconds corresponds to a viscosity of 1·4 gm. sec./cm^2. A viscosity test is regarded as being preferable to a softening point test since it may be carried out at the actual temperature at which kneading is effected and the results are more closely reproducible.

A further fact which has been established is that the strength of the briquettes is a linear function of the amount of pitch used. It thus follows that, for a given strength of briquette, a smaller quantity of pitch of low viscosity is required than of a pitch of high viscosity. Appropriate selection of the pitch and the briquetting temperature therefore affords a promising line of attack with a view to effecting economy in the amount of pitch required. In this connection, reference is made to the Fohr-Kleinschmidt process in which the coal is sprayed with molten pitch. The process has suffered from the drawback that the pitch is sprayed on to the cold coal in a cold chamber, the result being that a part of the pitch solidifies prematurely before it has coated the coal particles. It would be an improvement to spray the pitch on to hot coal in a vessel heated to 100° C. In that case, the full benefit of the use of a pitch too soft to be pulverized would be gained.

As regards the grading of the coal to be briquetted, the work of Broche and Nedelmann has been confirmed—namely, that a progressive decrease of the strength of the briquette occurs when the amount of oversize material is increased and the amount of fine material is reduced. The best results were obtained on a laboratory scale with coal of the following grading: On 2 mm., nil; 2-1 mm., 10%; 1-0·5 mm., 27·5%; 0·5-0·2 mm., 34%; below 0·2 mm., 28·5%. This requires confirmation on a large scale, since fine coal cannot be mixed as readily with pitch as can coarse coal. It would, however, seem that appropriate grading of the coal is likely to enable a briquette of suitable strength to be obtained with use of less pitch than is customary nowadays.

The Hameln Plant for Rendering Gas Non-Poisonous

H.-C. Gerdes, in *Das Gas- und Wasserfach* (1935), 78, 86-87 (Feb. 2), describes preliminary results obtained in the recently installed plant at Hameln for the preparation of "non-poisonous" town gas with a carbon monoxide content not exceeding 1%. The process is owned by the Gesellschaft für Gasentgiftung and is based on the water-gas reaction. The carbon monoxide in the gas is treated with steam at a comparatively low temperature in presence of a catalyst, hydrogen and carbon dioxide being formed. The treated gas has, apparently, the same therm content as the untreated gas, but is larger in volume, and, therefore, lower in calorific value. To compensate for this, one method is to scrub the treated gas for removal of carbon dioxide, but, in that case, a large reduction in specific gravity would occur. Alternatively, a gas of higher calorific value than the declared value can be made and treated, the initial calorific value being such that the treated gas has the declared calorific value. By this means, the specific gravity of the town gas can be maintained. An additional advantage is secured by this single stage process in that the gas to be treated has a lower carbon monoxide content than would otherwise be the case.

The second method is the one adopted at Hameln, though the calorific value of the gas sent out has been reduced from 450 to 440 B.Th.U./c.ft.

The following table indicates the results achieved:

—	CO_2.	O_2.	C_nH_m.	CO.	H_2.	CH_4.	N_2.	C.V.	Sp.Gr.
Gas formerly made for distribution .	2·8	0·6	1·7	21·4	52·8	14·7	5·0	450	0·46
Gas now made for treatment* . .	2·5	0·2	2·0	13·6	58·8	19·7	3·2	495	..
Gas after treatment . . .	13·3	0·2	1·8	1·0	63·3	17·5	2·9	440	0·46

* These figures are deduced from the information contained in the original.

The contents of cyanogen, naphthalene, and organic sulphur in the gas previously distributed were respectively 5·0, 5·6, and 10·2 grains/100 c.ft. The corresponding figures for the treated gas are 1·5, 2·6, and 1·5 grains/100 c.ft. The ammonia and benzole figures are unaltered, though the quality of the benzole is appreciably better.

From the data given, it would appear that, for a given make of therms, nearly 25% more coal must be carbonized under the present conditions than would have been the case if an untreated gas with a calorific value of 440 B.Th.U./c.ft. were distributed. On the other hand, less than half the amount of coke is used in water-gas production.

When these differences are taken into account, without allowance for the cost of treatment, the cost of gas into holder is reduced from 12·83d. per 1,000 c.ft. to 11·17d. per 1,000 c.ft. under the conditions prevailing at Hameln. This leaves a margin of 1·66d. per 1,000 c.ft. to cover the cost of treatment. The cost of this includes 0·73d. for power and 0·67d. for steam. Capital costs, under the present conditions of low load, represent 0·42d. and are therefore covered to the extent of approximately two-thirds. The uncovered capital cost is 0·16d. per 1,000 c.ft., and the total debit will be brought to about 0·27d. when allowance is made for replacement of catalyst, though this, so far, is an unknown item.

All guarantees have been fulfilled though the plant has only been at work for a few weeks. Evidence has also been obtained that it will even be possible to reduce the carbon monoxide content of the town gas to less than the 1% guaranteed. The satisfactory combustible properties of the treated gas are evidenced by the fact that the change in the nature of the gas has not been noticed by the consumers.

191

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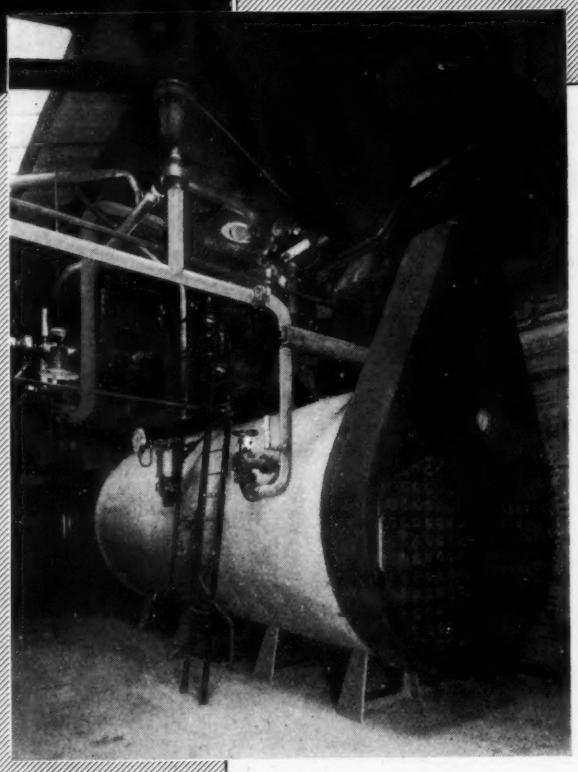

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Sales of Gas and the Basis of Charges

by P. F. SCARTH

This important topic of the Gas Industry to-day formed the subject of a Paper by Mr. P. F. Scarth, Joint Accountant of the Gas Light and Coke Company, to the London and Southern District Junior Gas Association on Feb. 16.

There is no difficulty in obtaining new consumers, and I would venture to say no difficulty in getting gas apparatus installed, if the price of gas is right. The problem is how to encourage all consumers to utilize gas fully for all purposes. From "Field's Analysis" I have extracted the following figures:

Annual Sales per Consumer.

—	Metropolitan Companies.	Suburban Companies
	Therms.	Therms.
Year 1929	194	171
,, 1930	183	161
,, 1931	181	161
,, 1932	172	157
,, 1933	165	149

If we consider for a moment that the sales per consumer are gradually decreasing, we should give careful thought as to the cause of the decrease. We know that to-day the apparatus being put out is more economical, also that we are losing the lighting load, but I think that we could capture additional business if we were not handicapped by the flat rate system of charge.

The Flat Rate System.

Recent legislation has recognized the limitations of the flat rate, and further recognized that to-day the Industry is subject to keen competition. The Gas Undertakings Act of 1934 gives the Gas Industry the freedom necessary to meet its competitors on common ground. This piece of legislation permits undertakings to depart from the flat rate and offer supplies under special contracts which do not adversely affect the distribution of profits. Before the passing of the 1934 Act, if one therm was sold in any year or half-year, as the case might be, at a higher price than the maximum standard, or basic price, the payment of a dividend, under the various private Acts of the undertakings, to the ordinary proprietors would be restricted accordingly.

The new Act states that "no account shall be taken of charges made by the undertakers, under a special contract," when considering the dividend payable based on the price charged. This Act does not give undertakings entire freedom to charge any price without suffering the limitations of the flat rate. The flat rate is still maintained, and undertakings must give notice to every local authority in its area of the price of gas per therm at which they are prepared for the time being to supply gas to persons who are entitled to a supply. The price stated in such notice shall not exceed the price which the undertakings are authorized to charge, by any enactment for the time being applying to them.

Before the passing of the Act of 1934 it will no doubt be observed that company undertakings could not adopt the policy of our competitors by introducing standing charges or two-part or multi-part charges, without risk of limiting the dividend payment. It became, therefore, the general practice to charge on a flat rate price and to grant discounts varying in degree according to the quantity of gas taken, the larger the consumption the higher the rate of discount, or alternatively to charge on a block rate system, the initial block being charged at the ordinary price and each block after at lower rates. Both of these methods were in effect the same, but from a salesman's point of view the charging by block rates did permit of a better approach to a prospective customer, and on the surface the presentation of a more attractive proposition to that customer.

If it were desired to attract new business by the offer of a two-part charge, it would be impossible to ensure that any consumer at any time pays a price which would not be in excess of the general flat rate price. It is now felt that with the introduction of the special contract provisions a further step can be taken and with advantage to the undertakings in the direction of selling gas. I must mention at this stage that the revenue of any undertaking must be at all times prudently maintained, which may mean that an alternative tariff may only be offered at a time when an alteration in flat rate charges is contemplated or inevitable. In the case of shrinking business drastic measures would, of course, have to be taken, quite outside the methods referred to.

Alternative Methods of Charge.

Let us now consider the alternatives to the flat rate which are permitted by the use of special contracts.

(1) Block rates or step rates where the initial block or step may be in excess of the published or flat rate price. The initial block or step could in effect contain a concealed service charge.

(2) Two-part charge:
- (*a*) The first part being a fixed service charge varying in degree according to some standard requirement.
- (*b*) A gas charge at a rate considerably below the flat rate or published price.

(3) Three-part charge:
- (*a*) The first part being a fixed service or customer cost.
- (*b*) A demand charge according to requirement.
- (*c*) A commodity charge based on the quantity of gas taken.

(4) Four-part charge:
The same as the three-part charge, but with the demand charge divided into two parts.
- (*a*) Manufacturing demand varying according to the quantity which may be required in any one day.
- (*b*) Distribution demand varying according to the quantity which may be required in any one hour.

The three or four part charge methods would only be of interest to the commercial or industrial users. In order that you may more easily follow my remarks, I have prepared four graphs. The basis of these graphs is a hypothetical undertaking with a total cost of supply of 8·242d. per therm, and an average sale of gas of 180 therms per consumer per annum.

Customer cost 24s. 6d. per annum—equal to	1·628d. per therm
Manufacturing demand	1·764d. ,,
Distribution demand	1·378d. ,,
Commodity cost	3·472d. ,,

The four graphs represent—

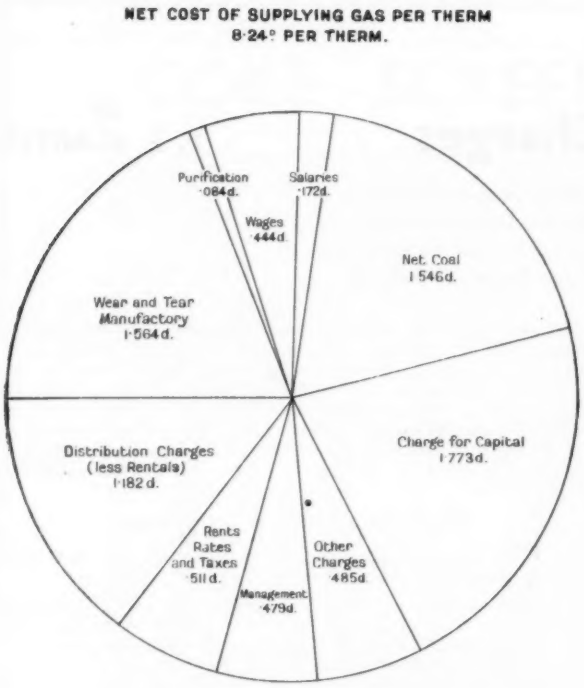
(1) The total cost of supply according to the standard form of accounts.

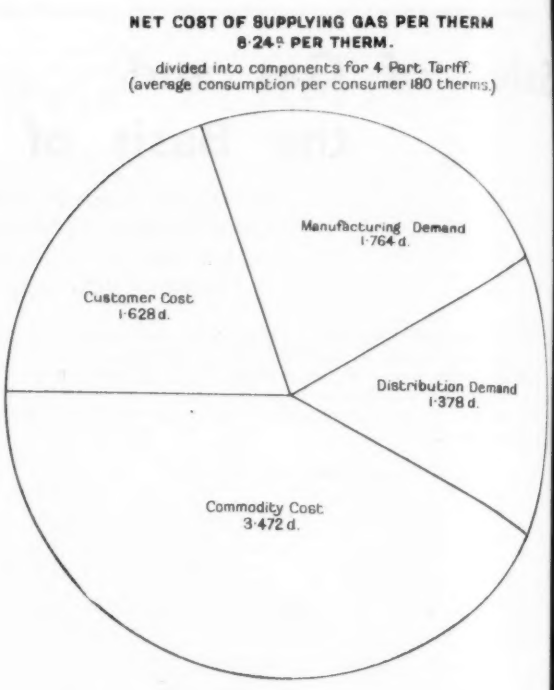
(2) The same costs divided according to the formula set out in the report of the Special Committee of the National Gas Council, as previously shown—
- (*a*) Customer cost.
- (*b*) Manufacturing demand cost.
- (*c*) Distribution demand cost.
- (*d*) Commodity cost.

(3) Illustration of the operation of a two-part tariff with a low customer cost and a relatively high commodity cost, with average theoretical cost of supply at various annual consumptions.
The first part is customer cost only. The second part is a combination of the manufacturing demand, distribution demand, and commodity cost.

(4) Similar to No. 3 but the combination reversed. The first or customer cost includes manufacturing and distribution demands. The second part includes commodity cost only.

If you will study the two graphs Nos. 3 and 4 for a moment you will observe that the cost of supply to all consumers taking less than 180 therms would theoretically be unprofitable. These consumers I should say would




NET COST OF SUPPLYING GAS PER THERM
8·24d. PER THERM.
divided into components for 4 Part Tariff.
(average consumption per consumer 180 therms.)
Manufacturing Demand 1·764d.
Customer Cost 1·628d.
Distribution Demand 1·378d.
Commodity Cost 3·472d.

numerically outweigh the theoretically profitable ones. What would be the position if an undertaking were permitted to refuse a supply to the theoretically unprofitable consumers? A large decrease in sales would result, and the cost of supply to the remaining consumers would be increased. Our efforts must therefore be directed towards increasing the average sales of the unprofitable consumer and towards stimulating the consumption of gas. The greater the consumption, the burden of the overhead or standing charges of the undertaking is naturally lessened per unit of sales.

In my opinion the present time is no time for tariffs based on strictly scientific lines, but we must consider closely the ability of the customer to pay and the cost of competitive fuels.

You will, I am sure, agree with me that our competitors, with their electric tariffs, do not always pursue scientific lines; they take business risks. I am aware that the electrical undertakings with plant laid down to meet their maximum demand have, during a long period of the day, surplus plant available, and if they can secure additional business at off-peak hours, electricity can be profitably sold at rates only slightly above production cost. Our competitors will continue to seek new business at these cut rates while they have their standing charges covered, or a high initial price to cover the peak or lighting load. Should we not follow our competitor's lead? Unfortunately, while we are not so favourably placed with regard to standing charges or high initial prices far in excess of cost of supply, we should offer rates for additional business more in accord with the cost of competitive fuels.

There is no doubt that when gas undertakings have a large amount of available capacity they should endeavour to carry out a price campaign on the lines of the electrical industry in order to cover, if only to a certain extent, the standing or overhead charges to which they are in any circumstances committed. In this connection, I should like to point out that a price which makes a contribution, however small, to the cost of standing charges can be offered when it is a question of increasing an existing consumption, or of obtaining new business for the purpose of filling a trough appearing in the output chart caused by seasonal or other variations. In every undertaking there are periods when the standing charges are not covered by a contribution from the revenue from gas sales, and the ideal would be for a reduction of these charges

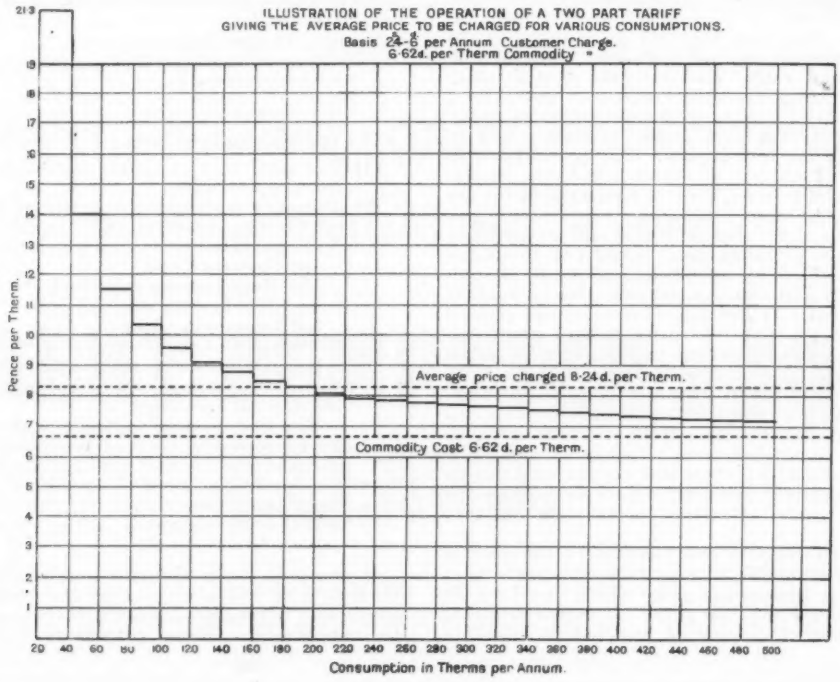


ILLUSTRATION OF THE OPERATION OF A TWO PART TARIFF
GIVING THE AVERAGE PRICE TO BE CHARGED FOR VARIOUS CONSUMPTIONS.
Basis 24·6 per Annum Customer Charge.
6·62d. per Therm Commodity
Pence per Therm.
Average price charged 8·24d. per Therm.
Commodity Cost 6·62d. per Therm.
Consumption in Therms per Annum.

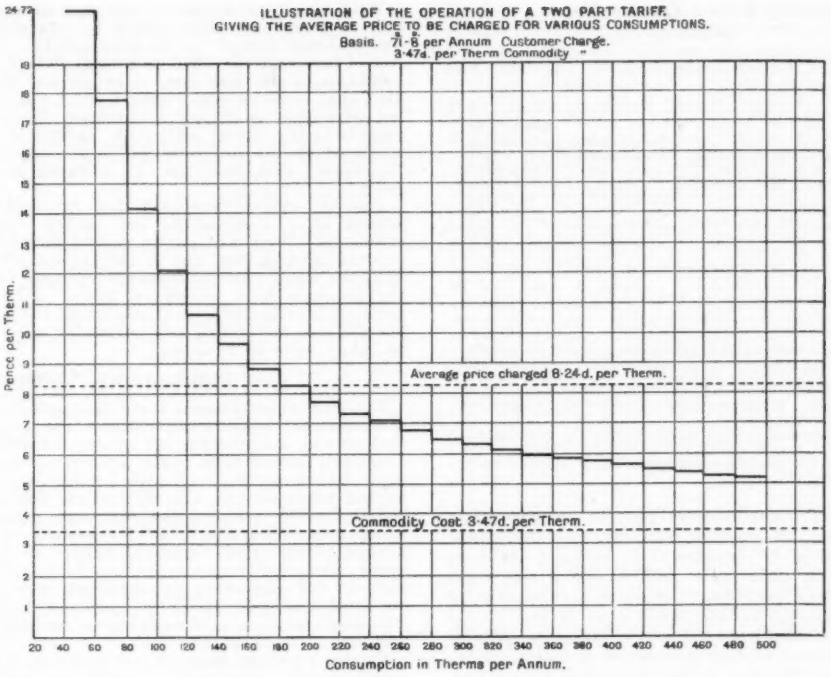


ILLUSTRATION OF THE OPERATION OF A TWO PART TARIFF
GIVING THE AVERAGE PRICE TO BE CHARGED FOR VARIOUS CONSUMPTIONS.
Basis. 7/-6 per Annum Customer Charge.
3·47d. per Therm Commodity "
Pence per Therm.
Average price charged 8·24d. per Therm.
Commodity Cost 3·47d. per Therm.
Consumption in Therms per Annum.

proportionately to the business actually done. This, however, is obviously impossible except perhaps to a very small degree; and therefore it is of advantage if some contribution can be obtained towards this cost, it being accepted as an axiom, of course, that actual out of pocket expenses—*e.g.*, net coal, wages, &c.—must be covered.

I am not unaware of the fact that if the business obtained by an exceptionally low price became too large and had the effect of overfilling the valleys, so to speak, the whole question would require reconsideration. The danger of this within a reasonable period of time is, however, remote.

If an undertaking could maintain its existing revenue and so cover its overhead expenses, additional business might be encouraged by a substantial reduction in price after a fixed minimum quantity, assessed as the basis of a consumer's standard requirement, had been consumed. You will understand that it is not possible to depart absolutely from the flat rate, and if the undertakings were to offer their consumers an alternative to the flat rate, such as a two-part charge, only consumers who would benefit would be attracted by the offer. Consequently the undertaking would suffer a loss in revenue. Obviously the most appropriate time to make a change in any charging method is when a price reduction is due to be made, and any surplus profits to be disposed of would be more usefully employed as a means of attracting new business, than by a general reduction in the flat rate price.

In special circumstances, such as an undertaking not having a surplus available for price reduction and desirous of maintaining its existing business against competition, a reduction in price would have to be made in spite of all conditions, and in that case it would be more advantageous to adopt one of the alternative methods than to make a general reduction in the flat rate. By a bold policy additional sales could be obtained, bringing in, although reduced, some element of profit which in the aggregate would restore the revenue of the undertaking to the standard level.

Domestic Sales.

Let us now consider the case of the domestic consumer. What further business is there available for us to undertake? We have the bulk of the cooking load, but we could increase our sales for water heating, refrigeration, space heating, and I expect the Press would also add lighting. Space heating in the domestic household would mainly mean a gas fire load. Some of you will, I know, point out that this business is a peak load business in severe weather, but need the peak be so pronounced if gas were generally sold at more competitive rates?

How should we be able to sell at competitive rates? If you will refer to the graphs 3 and 4:

(1) Standing charge £1 4s. 6d. per annum,
Gas at 6·614d. per therm,

or (2) Standing charge £3 11s. 8d. per annum,
Gas at 3·47d. per therm,

you will see that the hypothetical undertaking could afford to offer some reduction to its domestic consumers taking over 180 therms per annum by either of these tariffs.

All consumers of this undertaking where the consumption is below 104 therms make a contribution towards the standing charges only, and obtain such gas as they do consume without payment. In point of fact the good consumer is making a contribution to the poor consumer. It would appear then that after the limit of 180 therms is reached all gas in excess could be profitably sold at 4d. per therm. But we would wish to encourage the bad consumer also, and I suggest that undertakings should assess their consumers according to graduated standards and if the various graduated standards are exceeded, all such excess gas should be charged at very much lower rates, and more in relation to the commodity cost.

The basis of the assessment of the standard consumption could be founded on either the number of rooms occupied by the consumer, or the rateable value of the premises or rates paid, or floor area.

The whole question would necessitate a study of the position, but it does appear that an undertaking with a flat rate charge of, say, 9d. per therm could offer gas at 4d. or 5d. per therm to the domestic user and a great deal of additional business could be obtained. The above-mentioned prices of 4d. or 5d. would only apply to sales of gas in excess of the standard consumptions set up. The standard consumption need not be greater in any case than the existing annual consumption of the consumer.

How are we to construct such a system of charge as we have described? Frankly I confess it is by no means easy. Taking the simple view, it is, of course, perfectly obvious that no loss of revenue would be involved if the reduced price—*e.g.*, 4d. per therm—could be applied exclusively to additional business—*i.e.*, to each separate consumer's extra therm. In practice, however, it is equally obvious that it is impossible to distinguish additional business in this way, so as to differentiate in price.

In practice we should, of course, be compelled to adopt some universal uniform basis of assessment of consumers—*e.g.*, number of rooms, rateable value, &c.

In any particular group—*e.g.*, houses under £40 rateable value—consumptions will naturally vary, and any standard adopted for the group as a whole cannot possibly reflect each separate consumer's extra consumption. I may add here, however, that it is probable that the rateable value basis will be found to give the most consistent results.

Now it will be found that the consequence of this inevitable departure in practice from the self-balancing ideal of each "separate consumer's extra therm" is that the scheme cannot be put into operation without involving the surrender of some existing revenue. It therefore becomes necessary to set out the position *in extenso*, so as to show the loss of revenue at different standards adopted. This is most easily done in the way set out in the accompanying table.

The object is, of course, to recover as much revenue by way of standard consumptions (charged at 8·242d.) as we should be conceding by way of the reduced price of 4d.

Houses of Rateable Value: £40 and Under.

Group.				
(1)	(2)	(3)	(4)*	(5)*
Consumptional Group Therms per Annum.	Number of Consumers (Cumulative).	Consumption Therms (Cumulative).	Total Revenue from Existing Flat Rate Price. (8'242d.)	Total Revenue from Proposed Standard Consumption, *Plus* Balance at 4d. per Therm.
Under 40				
40–100				
100–150				
150–200				
&c., &c.				

* NOTE.—(1) Assume for purposes of trial and error, the standard consumption to be taken, for instance, in the lower limit of each consumptional group (*e.g.*, 40, 100, 150 therms, &c.).
(2) The revenue shown in columns (4) and (5) will then refer to consumptions above these turning points, which would benefit by the reduced price.
(3) The loss of revenue on consumptions benefiting may be determined by comparing columns 4 and 5, and will govern, according to circumstances, the standard consumption that may prudently be adopted.

per therm. In the table above we plot in an ascending series the whole range of possible standard consumptions (which may, of course, be expressed in another form as standing charges) and determine and compare the total amount of the standard consumptions, *plus* the balance at 4d. per therm, with the existing total cost of gas to all those consumers who would benefit at the different points. Each group—*e.g.*, houses of £40 and under rateable value, of £40 to £60, £60 to £80, &c.—would be taken separately, and a standard consumption for each would be taken at the point which produced a loss of existing revenue equal to that which the undertaking may be willing to concede, arranged, if desired, so as to provide for any particular differential incidence of charge as between different types of consumers according to the policy of the undertaking.

In conclusion, it would appear that the introduction of such a system of charge must involve a business risk which should bring its reward in expanding sales, which would more than compensate for the immediate loss of existing revenue. Our aim should be to encourage increased consumption, and it would remain with the salesman to find out what additional business is available at (say) 4½d. per therm.

I have not dealt in this Paper with the question of financing hire-purchase or installation schemes; these should be self-supporting in all cases, so that no loss in connection with this branch of our business should be borne in the price of gas.

Discussion.

Mr. J. M. WEBBER (Croydon), the Senior Vice-President, presiding in the absence of the President, Mr. F. C. Smith, said he hoped Mr. Scarth's Paper would have dispelled tariff mysteries to some extent. Mr. Webber went on to refer with pleasure to the presence with them that evening of Mr. W. Grafton—the first President of the London and Southern District Junior Gas Association, in 1902. In fact, they could almost look upon him as their founder. In those days Mr. Grafton used to be a Lecturer on Gas Manufacture at the London Polytechnic, so that they might also regard him as the founder of the modern system of instruction they were receiving to-day. Then it was also interesting to note that Mr. Scarth was the Association's first Hon. Secretary, and was, incidentally, a student under Mr. Grafton.

An Urgent Problem.

Mr. E. J. FOTTRELL (National Gas Council) said that he welcomed the invitation to attend the meeting, because there was not, in his opinion, any single problem confronting the Gas Industry to-day which was more urgent than the improvement of their present methods of charge, and none upon the successful solution of which so much depended. They were fortunate in having a Paper on the subject presented by so eminent an accountant as Mr. Scarth, as the problem was nine-tenths one of accountancy.

As Mr. Scarth had pointed out, the Gas Industry had for generations been accustomed to think in terms of the flat rate. That was not entirely their own fault, for the method had been thrust upon them by Parliament. In the early days when gas was solely an illuminant—when it was required by all consumers at the same time and during certain hours only, the flat rate was logical and an appropriate factor in determining the dividends of a Gas Company. When, however, gas commenced to be utilized for heating purposes, the picture was entirely changed. The same amount of capital invested in plant and mains enabled a larger quantity of gas to be produced and distributed, because consumption was spread throughout the 24 hours, and for the first time load and diversity factors became of importance.

With the introduction of load and diversity factors, the flat rate as a means of determining the statutory dividends of gas undertakings ceased to be appropriate. Fortunately, in the Act of last year they had to a large extent been relieved of the handicap of the flat rate, although one disability remained—viz., that alone among Public Utility Undertakings, they were not permitted to impose a minimum charge. In spite of that disability, the fullest advantage should be taken of the flexibility which the Act provided in the matter of charging, and Mr. Scarth had indicated in his Paper how a start could be made.

The flat rate presupposed that gas undertakings were purveyors of a commodity, but to-day that view was quite erroneous. They had got to regard themselves as providers of a continuous service, and if they looked at the matter in that light the whole basis of accountancy upon which their costs and charges were built ceased to apply. To-day they must consider not merely the cost of producing and distributing a therm, but the cost of meeting any particular service which they might be called upon to perform.

A Fundamental Difference.

The difference between these two aspects of the matter was fundamental, and altered entirely the form of charge which they should make for the services they performed. Mr. Scarth's diagrams showed that the commodity which they provided as part of their service represented in the hypothetical case which he had taken slightly over 40% of the flat rate price which was charged. The bulk of the cost was represented by charges which were independent of the quantity of gas made but dependent very largely upon the nature of the demand. If they could increase their sales without adding to their present investment in manufacturing and distributing plant, it followed that no additional costs would be incurred in respect of manufacture and distribution demand, and probably with a negligible addition to the customer cost.

On the existing basis of accountancy, however, the cost of producing 25% more gas, if spread over the total output, would show that the cost of the average therm would not differ very materially from the cost at the present time. They must banish from their minds the idea that the cost of the average therm served any useful purpose in determining the charges to be made. If they could increase the existing demand of individual consumers—if they could "peg" their consumption at its present figure by means (for instance) of a service charge—it was astounding to find how cheaply they could afford to supply them with an increased quantity of gas.

Mr. Fottrell went on to suggest that anybody who wanted to understand this problem thoroughly should commence by making himself acquainted with the Report referred to in Mr. Scarth's Paper, and in particular with the Appendix to that Report in which was set out a form of 4-part allocation. Any one who took the trouble to analyze his costs as therein suggested would see the problem of charges in a very different light. It would indicate how additional loads were affected, if at all, by manufacturing and distribution demand costs.

Effect on Existing Revenue.

In addition, it was necessary to know what effect any change in the present charges would have on existing revenue, and for this purpose he stressed the importance of analyzing consumption. The Official Returns which divided the community into two classes and enabled the average consumption through ordinary and prepayment meters to be determined were quite valueless for this purpose. What was required was the average consumption of each different category of consumer and the quantity of gas used by different consumers in the same category. Everyone who dissected the meter books to find out the number of consumers using, say, under 10 therms per quarter, between 10 and 12 therms per quarter, and so on right up the scale, would derive much useful information. And it might provide somewhat of an eye-opener.

Finally, Mr. Fottrell suggested that when considering how they might improve their forms of charge they should consider seriously increasing the existing flat rate in respect of, say, the first 5 therms consumed per quarter. If this were done, they would find that a simple 2-part rate could be offered which was extraordinarily attractive.

Mr. W. GRAFTON briefly acknowledged the remarks made by the Chairman, and said what a great pleasure it was to be at a meeting of the London and Southern District Junior Gas Association again and meet some of his old friends. As regards the Paper, he suggested that coke, tar, and other residual products should be taken into consideration when framing tariffs.

Mr. A. C. MASTERMAN (Gas Light and Coke Company) referred to the effect of competitive tariffs on the space heating load, which Mr. Scarth pointed out was a peak load in winter, and emphasized the danger of any slight tendency to regard these tariffs as an excuse for slackening their sales efforts. Tariffs would not give them new loads if they slackened their efforts. They would not obtain new loads unless they serviced them properly. All the salesmanship in the world would not do any good unless their follow-up was adequate.

Exploitation of Promotional Rates.

Mr. W. A. BISHOP (Croydon) observed that he was still unconverted to the belief that prosperity (and by prosperity he meant the maintenance of profits) was to be found in the exploitation of the so-called promotional rate idea interpreted either as two and multi-part tariffs and block scales. Reducing the price of gas might help their sales; but price reductions

were not the remedy in cases where lukewarm sales methods persisted. Greater resources were needed on the sales and utilization sides of the business, and bigger and bolder methods of advertising must be practised.

It was true, continued Mr. Bishop, that although the Industry was expanding, the growth was mainly due to new consumers; and the all-important thing to observe was what was happening in regard to the average consumption per consumer—a point he stressed in his recent Chairman's Address to the London Area Salesmen's Circle. Mr. Bishop went on to give some interesting figures as to the number of his Company's consumers in 1923 compared with 1933, the average consumption in each of those two years, the total sales of gas for the two years in question, the number of consumers per mile of main, &c.; and proceeded to show that while the average consumption per consumer had declined to a small extent, the cost of capital per therm sold had gone up—as also had the distribution costs, to a small extent. This all had a material bearing on what they could afford to give away. Continuing, Mr. Bishop referred to the well-defined reasons for the decline in the average consumption per consumer, and gave a few examples of load-building values of coppers, bedroom fires, geysers, &c., to emphasize his point that there were tremendous opportunities for cultivating further fuel business if, and only if (this was the essential preliminary), people could acquire their use on easy terms. The flat rate system of charge, though far from ideal, was not in Mr. Bishop's view the major hindrance to the development of domestic business. Hundreds of cases had been investigated where comparatively small consumers had installed extra appliances—with encouraging results—particularly as regards water heaters. If one studied the monthly output curves of gas sent out it was obvious that they could afford to do something to cultivate the summer load with a view to effecting some partial levelling up of the ratio between an average winter day's output and an average summer day's output, which in the case of his own Company was of the order of 1·8 to 1·0. It had been felt that the most direct way to try to achieve this (direct in the sense that they could estimate fairly closely what they were "giving away" in service) was to let the price of gas stand the maintenance charges of apparatus, and if there was then sufficient margin, let it further partly subsidize the installation costs. This policy had been followed by the Croydon Company for some time and had met with a fair measure of success.

To mention one case only—that of water heaters—the output of heaters for 1933 showed an increase of more than 94% over the 1932 figure. This was largely due to the popular operation of the rental system, including fixing. During 1934 the figures were well maintained, and the sales of gas during August (6% up on the previous year) constituted a record August for the Company. Water heaters had something to do with that, and as time went on they would play an enormous part.

Another Standing Charge.

As to tariffs, Mr. Bishop said that in his view, for purely domestic uses, he failed to see how much benefit was going to be gained by adopting either two-part methods of charge or block systems, and he gave his reasons for this belief. In the case of a two-part charge they were asking their salesmen to sell to the customer another standing charge, as the majority of electricity consumers who were also gas consumers already paid an electricity standing charge. In regard to block systems—which, it might be argued, were illogical, since they paid no regard to the demand factor—the blocks did not generally appear to begin early enough in the scale of consumption, nor were they stepped down steeply enough to tempt people to burn the considerably increased quantities of gas even to balance the revenue.

Mr. Bishop remarked further that, together with his General Manager, Mr. Sandeman, he had explored the probable effects of a number of tariffs—effects on revenue and profits—and he gave some figures showing how much more gas would have to be sold in the case of three typical tariffs to balance revenue. In the case of one two-part tariff the figure was 21%. Summer tariffs had been referred to elsewhere, and some figures Mr. Bishop had taken out showed in the case of his Company that a reduction of (say) 1½d. per therm in the price of gas for the six summer months (not a very tempting reduction to induce people to burn more gas) would necessitate an increased output of 20% to balance the revenue.

Speaking of large-scale commercial and industrial consumption—and with these Mr. Bishop advocated the inclusion of central heating and large-scale water heating (*e.g.*, swimming baths, &c.)—a block system of charge appeared to have much to commend it. It made a much more direct and convincing appeal to certain classes of consumer, who could readily see the benefits they were to receive in price reductions as the consumption increased; whereas a two-part special contract sometimes left things partly in the air. Really, the much-discussed demand factor need not count for very much, assuming, of course, that the suppliers were in a position to meet, with a margin, the maximum peak load. Quantity rather than the purpose for which gas was used should be qualification for preferential rates to large users. In conclusion, Mr. Bishop said he felt that the question of "How can we induce people to burn more gas?" was to be answered (perhaps only in part) by making it more simple for them to acquire the use of gas-consuming apparatus.

Need for Financial Studies.

Mr. R. Summerson (Luton), Junior Vice-President of the Association, remarked that in the past little attention had been paid by the average Junior to the financial aspects of the Gas Industry. This was necessarily so when the main problem of the times was the solution of manufacturing difficulties. To-day, however, the problem of the age was not one of production but of distribution. He therefore welcomed very much this provocative Paper from Mr. Scarth; he hoped it would be a beginning of the regular inclusion by all Juniors of financial studies alongside their normal technical work.

There were two questions he would like to ask Mr. Scarth in connection with the Paper. First, in a Paper before the Institution of Gas Engineers in June, 1934, Mr. Masterman stated that in America the wages and salaries for comparable work were higher than in this country, and that, while the average annual American gas bill *per capita* was larger than in Great Britain, it represented a smaller proportion of the normal family budget. He would like to ask Mr. Scarth whether the methods of charge he mentioned would inevitably increase the gas bill proportion of the normal family budget in endeavouring to increase the sales. Secondly, Mr. Summerson inquired whether—when under these new tariff systems it seemed inevitable that the people who could least afford it had to pay most for their gas—Mr. Scarth really thought that the methods of charge he proposed would have the effect of encouraging increasing consumption among the financially poorer classes of consumer.

Mr. Harman, in connection with the suggestion that the poorer consumers would be harmed by standing charges, observed that this class were not necessarily the smallest consumers of gas. The smallest consumers might be in shops and such premises where gas was used only as a stand-by—in which case the standing charge would be perfectly fair. Mr. Scarth had stated that block rates and discounts were not very different; but Mr. Harman suggested that if one drew graphs of the average receipts with a block rate, the points always moved evenly; whereas with discounts, as one moved from one rate to another, one experienced a drop where the average receipts fell, or to rule that out, one had to go directly sideways to cut off the peaks from the troughs wherever a larger discount commenced. With the block rate there was a flattening out, but with the discount one had the effect of the teeth of a saw set on edge.

Mr. L. F. Randall (South Metropolitan Gas Company) pointed out that while the sales of modern gas appliances had gone up by leaps and bounds, the consumption per consumer had gone down. Therefore, Mr. Bishop's idea of increasing the number of appliances fixed would not materially help to improve the consumption of gas per consumer—which was borne out by recent figures. Therefore new and increasing numbers of consumers would not increase the sales, with the obvious result that these appliances were unremunerative to install. He agreed with Mr. Bishop, however, that the advantages they could offer were so small that they could not attract the average consumer. If the unremunerative consumer could be made to pay a little more it would result in large reductions in various tariffs and charges. If an undertaking gave a service then the consumer must be prepared to pay for it, and they could, without losing business, make a bad consumer—who was not necessarily a poor consumer—pay for making a convenience of the gas undertaking. Such a consumer could pay, or he would not have these expensive appliances installed.

Another Speaker said he could not quite agree with basing the service charge on the rateable value. If one gas undertaking supplied gas in the areas of a number of different local authorities, it might be found that in one area there was a high assessment and a low rate and in an adjoining district a low assessment and a high rate. Trouble might arise in this connection; and he felt that a better method was to take the superficial floor area of the house—which gave the fairest comparison between houses.

An Implied Condemnation.

Mr. E. Fletcher (Institution of Gas Engineers) said he was disappointed in the Author's suggestion that "the present was no time for tariffs based on strictly scientific lines, but they must consider closely the ability of the customer to pay and the cost of competitive fuels." Mr. Fletcher observed that he was not disappointed because that was a condemnation of what was known as "scientific" tariff making, but because the condemnation was only implied. The sales side of the Industry had been managed up to quite recently almost entirely by men with an engineering bias, and it was not surprising that "scientific" tariff making had developed with the ideal of ensuring that each and every consumer paid as nearly as possible a sum proportional to his estimated share of the costs. That sounded nice and desirable; but in reality it showed that the theoretical background of the problem had been got out of perspective, and he had hoped that Mr. Scarth, as an Accountant, would have dealt fully with this. For time and energy spent on the tariff problem with this aim must, he suggested, be misdirected and wasteful—though he knew that Mr. Fottrell might disagree with him here.

The sales and management side of any undertaking surely need consider in this connection only the total revenue required and the figure of prime or commodity cost, at a price below which no gas must be sold. Thereafter it was a matter of sales expediency, and he was grateful to Mr. Scarth for commencing his Paper with an extract from Field's Analysis, emphasizing the fall in sales per consumer. "Promotional Rates," as the Americans aptly called them, were required as a branch of salesmanship as much as was newspaper advertising. Both aimed at making effective a latent demand; and as long as the return was above commodity cost a load paid for its marginal

costs and contributed something towards the fund out of which overheads must be paid. Unless actually on a peak which approximated to maximum capacity any such load was welcome. The object and justification of rate making was therefore not to correlate details of costs and gas charges, but totals only, and to provide an adequate psychological appeal to the consumer to use more gas—an appeal not sufficiently provided for by the flat rate.

That there was nothing "scientific" in this—in the way the word "scientific" had been applied to multi-part tariff making—continued Mr. Fletcher, was shown by comparing two well-known provincial tariffs, Mr. Haynes' two-part tariff at Rotherham and Mr. Curtis' seasonal differential at Macclesfield. These had been very successful, and each had justified its existence. But they were essentially and fundamentally different in structure, and if one believed in "scientific" rate making, one of them must be wrong. One might be better than the other; but the truth of the matter was that any undertaking with a flat rate might with advantage copy either.

One often saw it suggested that the reason and justification for promotional rates was the fact that the cost of supplying each consumer was different; but these two gentlemen, Mr. Haynes and Mr. Curtis, together had shown that the reason and justification for progressive rate making was nothing of the sort. It was nothing at all to do with apportionment of costs, and had become necessary owing to the increase in the number of ways of obtaining light, heat, and power, and the consequent competition—rather than to the increased number of uses to which gas might now be put. The Rotherham and Macclesfield tariffs had both been successful not because they might have a scientific and mathematical basis—they were too different both to have this—but because in each case there was—the only thing in common—an adequate psychological appeal to the consumer to use more gas.

Consideration for Coke Consumer.

Mr. G. H. S. Du Pontet, B.A. (Gas Light and Coke Company), spoke on the subject of taking the coke consumer into consideration when framing tariffs. As regards minimum standing charges, he had heard many complaints about meter rents, the psychological effect of which was of very great importance.

Mr. A. P. Scarth (Croydon) referred to Mr. Bishop's efforts to bring about the installation of further appliances with the fixing charges included in the rent. It was all very well to get these appliances into consumers' houses, said Mr. Scarth, but did the consumers use them? If they offered gas at a reduced price it was going to help them to install more fires. As the Author of the Paper had pointed out, the average consumption per consumer during the working hours of the day was about 7 c.ft. per hour, which showed how little gas was used for space heating. If they could offer gas at 4d. or 4½d. a therm for heating by fires surely it would be to their benefit to do so.

The Inter-Relation of Residuals.

Mr. G. Gardiner, A.C.W.A. (Wandsworth), remarked that, as the net coal cost was the bedrock to which gas sales prices were correlated, the receipts for the sale of residuals were interrelated to gas sales. The necessity for ensuring the sale of coke at the present prices, or at enhanced prices, was of primary importance. How could this be done? The sale of coke fires had increased very considerably. The inter-relationship of coke and gas was strikingly demonstrated in the gas-ignited coke fire. To produce the gas required by the average consumer taking 180 therms per annum (Mr. Scarth's figure) nearly 2½ tons of coal had to be carbonized. The coke made for sale from this quantity of coal was (say) a little over a ton. If every domestic consumer were to take the full quantity of coke which was available from the coal which had produced his 180 therms of gas—which worked out at about ¾ cwt. a week over a six months' period—no coke would be left over for industrial use. A gas consumer who now used coke received no preferential treatment in respect of his price. The gas consumer who did not use coke paid no more for his gas than his gas and coke consuming neighbour. He submitted that consideration should be given to the suggestion that the gas-cum-coke consumer should receive some financial benefit over and above any he might receive from a differential tariff rate.

A Speaker suggested that an "all-gas" consumer should be allowed a special discount.

The Author's Reply.

Mr. Scarth, replying to the discussion, said that Mr. Masterman had asked how the peak load for space heating would be reduced if more gas were used for this purpose. What Mr. Scarth intended to convey was that a reduction in price would enable more consumers to use gas for space heating for a longer period in a year than at present used. The load would be improved. The average consumer (excluding industrial users) consumed, say, 140 therms per annum, which meant only a consumption of 7 ft. per hour during the 12 working hours of the day. The addition of one gas fire burning 30 ft. per hour per day for one hour only for six months of the year, would increase their sales per consumer by 20%. Having increased their sales this way, say, from October to March, the peak load would not be so acute, being spread over a period of six months instead of a possible two or three weeks in a cold spell.

Mr. Bishop did not agree that the best method of increasing sales was by a departure from the "flat rate" basis. He preferred to rely on service to the customer, and in assisting the consumer in installation costs. Mr. Scarth agreed that these were very necessary and perhaps should be the first steps in sales promotion; but would it not be of further advantage to the undertakings if the installed apparatus were more regularly used? The main thing was to encourage the sales of gas. He was sure also that Mr. Masterman would agree in his advocating research work on all kinds of gas consuming apparatus, endeavouring to make them efficient and tasteful to the eye, that this was their main object. Mr. Scarth contended that if the price of gas was reduced by one of the methods outlined in his Paper, the consumer would much more readily avail himself of gas apparatus, and the salesman also would be assisted by such a scheme. It was possible that the existing revenue might not for a time be maintained after an alternative method of charge had been introduced, but by attracting new business in such volume the balance would eventually be permanently restored.

Mr. Summerson asked whether the suggestions made would eventually increase the gas bill proportion of the normal family budget. Mr. Scarth thought it must do so, but at the expense of other fuels. The consumer was generally ready to pay something for added convenience, and it was neither necessary nor desirable to raise the price for the small consumer who could least afford to pay more. He would suggest that attracting new business, even at lower rates, thus providing some additional contribution to the fixed or overhead charges, must react to the advantage of the small user. Even the poorer class of consumer would eventually be reached by gradual stages. Naturally any undertaking must move with caution and attract the bad consumer while retaining the goodwill of the better consumer. The bad consumer was not necessarily a poor one, and if additional business could be obtained this must react to the benefit of all classes.

Mr. Harman suggested that the block rate system of charge differed from a flat rate with discounts. Under the usual methods he did not think there was a great deal of difference, but it depended on the construction of the discount scale. Possibly Mr. Harman was thinking of step rates which presented difficulties at the point between any two steps.

Scientific Tariffs.

Mr. Fletcher was disappointed with his reference to tariffs on "strictly scientific lines." Frankly, Mr. Scarth did not think such a thing was possible, and in support of his contention he would mention the great number of tariffs in force in America and the great number which were employed by the electricity undertakings in this country. It was possible that local and political considerations largely influenced the framing of a tariff. The two totally different tariffs referred to—namely, the one employed by Mr. Haynes at Rotherham and the other by Mr. Curtis at Macclesfield—were no doubt largely framed on local circumstances. In the case of Rotherham there were special conditions, such as the ability to be able to purchase cheap coke oven gas, but Mr. Haynes had availed himself of this advantage and had proved that much business could be obtained if gas was sold at competitive rates. In framing any tariff it must be remembered that conditions would change each time an adjustment of charges was made or additional business was obtained.

Mr. Du Pontet had suggested that a gas and coke consumer should receive special consideration. Possibly so, but there would be considerable difficulty in applying any rule. They were not the only producers of coke. They had to meet the competition of oven coke, and, in fact, gas undertakings competed with each other in their own districts of supply. He had also referred to minimum standing charges. At the present time gas undertakings were not permitted by Parliament to make a minimum charge. Therefore gas undertakings must make the best of the conditions which existed to-day. Meter rents could be included in the standing charge of a two-part tariff. He did not see that pre-payment consumers need be disregarded if there justified consideration.

Vote of Thanks.

Mr. R. Summerson (Luton) proposed a hearty vote of thanks to Mr. Scarth for his Paper, remarking that he would like to see some form of tariff whereby a consumer received more therms for the same amount of money.

Mr. W. A. Bishop, seconding the vote of thanks, expressed to Mr. Scarth his appreciation of a most instructive Paper which threw much useful light on an obscure subject. It was a timely Paper, coming along as it did, at a stage they were so deeply exercised, in days of intensified competition, with this involved subject of rate structure. The Paper had produced a valuable discussion, which he felt would prove a source of gratification to the Author as indicating the value of his work.

Mr. Scarth, in acknowledgment, said he was deeply grateful to Mr. Fottrell for giving the benefit of his views on the subject. Mr. Fottrell was, he must say, the pioneer and chief advocate of two-part and multi-part charges for gas undertakings in this country, and he hoped he would before long see his theories more generally put into practice, and gas undertakings profiting by his suggestions.

Commercial Gas Company

Ordinary General Meeting

The Annual Ordinary General Meeting of the Company was held at the Abercorn Rooms, Liverpool Street Station, London, E.C., on Thursday, Feb. 21, 1935—Dr. CHARLES CARPENTER, C.B.E., M.Inst.C.E. (the Chairman), presiding.

The GENERAL MANAGER AND SECRETARY (Mr. F. J. Bradfield) read the notice convening the meeting, and affixed the Company's seal to the Register of Stockholders.

The CHAIRMAN: Ladies and Gentlemen,—You have now had the report and accounts sufficiently long in your possession to justify, I think, your adoption of our usual procedure at these meetings—namely, to take them as read.

Perhaps the feature of the accounts to which you will have first turned, and naturally, is the dividend we propose should be declared upon the ordinary stock—namely, a total of 5½%, compared with 5¾% a year ago, and I think I had better say what I have to upon this subject before I proceed to discuss details of the accounts.

Now the Board of Trade Returns make perfectly clear the fact that, while the number of gas consumers is an increasing one throughout the country, their average consumption per head is a reducing one. In many undertakings the effect of one factor cancels out the other, but the fact that this Company has carried on its business for the last half-century or so within a non-expanding circle rules out any application of this compensating principle to its operations. For better or worse, it has to make the best of such custom as can be obtained within its gates—it cannot go beyond them. Now, if matters ended there as they began, our business would be a very simple one. We should supply energy for the bulk of the centrally distributed energy required for cooking, and for house warming and water heating, as well as, in addition, such simplified lighting as can be given by incandescent gas mantles where air warming and its circulation, as distinct from its stagnation in rooms and halls, is a desired concomitant of the soft, mellow, eye-restful light which the mantle provides. Now, this is not an illusion, ladies and gentlemen. The great bulk of my own evening home-work is accomplished wholly by gas-light, and this Company actually sold last year over 17,000 sets of lighting burners, and over the last five years 170,000. That does not look as if there was not still substantial demand for gas for lighting purposes. In fact, despite the enormous growth in the use of electricity for this purpose, and despite a somewhat unscrupulous practice which has grown up of understating its cost, a not unimportant usage of gas supports my contention that there is still much to be said in its favour for lighting purposes.

Room for Improvement.

Now, if you ask me whether we have been doing our best to bring the general qualities of gas supply to the notice of the public, I am bound to say our efforts still leave room for improvement—that is to say, when these are judged by the methods of our competitors, and although no commercial undertaking could possibly go these lengths without finding itself in the bankruptcy court. There was given in "Hansard" a few weeks ago, in reply to a question in the House, the average price obtained from the consumers of electricity by the Metropolitan Municipal Undertakings for lighting and domestic supplies as being 1·88d. per unit—a long way above the advertised halfpenny. And yet the poorest customer for current, the one least able to foot the bill, is led to believe that he can get his supply at one halfpenny per unit. The halfpenny is in very large type—*plus*, it is true, a small standing charge, so small in fact that the announcement is unobtrusively tucked away beneath the shadow of a large halfpenny. An exhibition was recently staged at a Town Hall in our district, and therefore I must assume under municipal patronage, in which a *quasi*-Hogarthian tableau was staged of "Then and Now." The "Then" showed a dirty kitchen in which a dirty gas cooker was tended by an ill-clothed housewife, while her dirty husband waited for his dinner with his dirty feet on the kitchen table. The "Now" was, of course, a kitchen decorated in cream and white, tended by a spick-and-span sort of "Nippy," while the latest type of electric food-preparer, sparkling with enamel and chromium, performed its lethargic functions with discretion if not despatch. Visits to the show of a former Cabinet Minister and a sprinkling of Electric Knights were duly recorded in the Press.

Now, I freely confess that, if this is salesmanship, then we have been behind-hand and must seriously alter our methods for maintaining interest in our affairs shown by the public's appreciation of our services for well over a century. While we can leave in their entirety the unladylike methods of "Pretty Fanny" to which I have referred, there are some underlying suggestions about them we can adapt to our needs.

In one particular respect we have been admittedly behind-hand. Our figures show that on an average almost every one of our consumers has a gas stove. Some of you, however, may have seen an announcement in the local Press that one Municipal Authority fixed last year 1,800 cookers. It also added its own testimonial to their value by the users, as to which we can well afford to "Wait and See!". But, at any rate, we became suddenly conscious last year that our own stoves, which we knew to be in the main efficient, were neither decorative nor attractive, when judged by the prevailing standards of the day. They were designed for cooking food, and not for decorating the kitchen of 1935. We are now busily engaged in bringing this side of our business up-to-date. Over 9,000 have already been exchanged, and there are still some tens of thousands remaining to be done. At the present time the older type are being exchanged at the rate of from 400 to 500 per week, but we must have more capital in which to rapidly and efficiently carry out the exchange, and it is a strong reason why we are asking you to approve our financial proposals for, *inter alia*, doing so. As long as unattractive cookers continue in use, they will be a source of attack on the part of our opponents.

Effect of the Weather.

The other factor which has brought about a reduction of gas consumption is the weather, and although personally I should be disinclined to mention it, yet if I did not I fear the staff, who have worked for you so earnestly and loyally, would have, and justly, some cause for complaint at my omission to refer to their second heaviest handicap during the year under review. Although competition played its part in the adverse results of the past year, a not unimportant factor was the mildness of the weather—especially during the month of December. In that month the average temperature was 11·5 degrees warmer than during the corresponding month, 1933. This is the greatest variation over a whole month within my recollection. December is a good gas selling month, and such a change has more effect on the year's output than it would have had had it occurred in any other month of the year.

There are, of course, other factors which affect gas sales—such as the decrease in the population to which I have referred in previous years—changes in the habits of the people, many of whom "live out of tins," and also unemployment. With regard to unemployment, of which there is less proportionately in East London than in many other parts of the country, observation has shown that the Company's sales vary with any rise or fall in the allowances. I believe the number of registered unemployed persons is about 6% less than a year ago, and while this is a distinct improvement the number of persons re-employed is quite small, and a really satisfactory solution to this disturbing problem has yet to be found.

Now, taking all these circumstances into account, and the fact that our net profit has been but £76,850, our inability to declare a dividend on the ordinary stock or a bonus on co-partners' salaries and wages at the same rate as last year becomes obvious, and we therefore recommend that a final dividend be declared of 3%, instead of 3½% paid for the corresponding period 1933. A resolution to this effect will be submitted later in the proceedings.

Growing Demands of Slot Consumers.

There are several reasons for the diminution of profits, but the one which has the greatest effect upon our working is the growing demand of those consumers of gas supplied through the medium of prepayment meters for increased service and more up-to-date appliances. They are no longer satisfied with the articles they used to have, and require more attractive ones, such as they see in advertisements and in the showrooms of our own Industry and our competitors.

Efficient service has always been a matter for pride with the Company, but the increased demand for it has not been so noticeable as during the past year or so. The requirements of the ordinary consumers have also increased, but to a lesser degree. It may interest you to know the effect on the Company's expenditure. The distribution costs in the year 1924 were £180,169, and last year £209,350, a very substantial rise, and therefore affecting the working.

It must not be overlooked, however, that the intensive competition all gas companies are experiencing from the Government-aided electricity undertakings also plays an important part in the additional maintenance costs, as well as in relation to the quantity of gas sold. As you are aware, there are three municipal electricity undertakings within the Company's area of supply, fighting hard in an endeavour, so far not a very successful endeavour, to secure the cooking load. It is satisfactory to note that the number of electric cooking stoves installed is comparatively few, and this is only accomplished by the sale of current at a remarkably low price. Healthy competition is good for all of us, but it appears to me bad policy to deprive one's self of an equitable return for money expended merely to dispossess your competitor.

Gas has been called "The light that never failed," and in this respect compares most favourably with its competitor. For whatever purpose gas is used, you can be sure it will not fail you. During the past year there were 98 serious electricity failures or, as they have become known, "black-outs" in the United Kingdom.

I must now turn to the Accounts. It will be seen, in the Capital Account, that £6,613 4s. 2d. has been expended on freehold property. The larger part (£3,645) of the expenditure represents property near the Stepney Works, which it was neces-

sary to purchase for extending our appliance storing accommodation.

Dwellings for Employees.

The area of both the Stepney and Wapping Works is very restricted. A sum of £773 represents a building adjoining the Company's Poplar Works on a piece of land previously bought by the Company. The balance of the amount represents either property adjoining the Manor House Estate—upon which I informed you a year ago the Company is erecting cottages for some—I am sorry to say a few only—of our employees, and also properties purchased to accommodate persons displaced from houses being demolished on the Estate.

With regard to the cottages being erected—there will be 29 of these, and the accommodation consists of a large living room, a kitchen, three bedrooms, and a bathroom. All the rooms will face south, so that they should get the best of the sun, and there will be a small piece of ground for a garden for each tenant. There was a little difficulty in obtaining the consent of the London County Council to the scheme, by reason of the Council's desire to have a thoroughfare through the Estate. From the point of view of health and the clearance of slum property—apart from the Manor House itself—fourteen houses on the property are being demolished under the scheme. These houses accommodated about 93 persons on an area of about 0·3 of an acre, which is equal to 316 persons per acre. Under the Company's proposals it is expected to accommodate 116 persons on an area of 1·2 acres, equalling 96 per acre. Put another way—originally there were 48 houses to the acre, whereas the number being erected will be just half of that number.

One of our endeavours in this proposal is, as I have already explained to you, to show what can be done with gas in the matter of appliances for lighting, heating, cooking, and other domestic operations, though it is part of our bargain that we should give full facilities for these supplies to be provided by the electricity undertaking, should they be disposed to offer them. We should be the last to object to tenants having unlimited opportunities, as they have unlimited rights, to use electric energy if they wish. What often happens is that when people have wireless sets they feel they would like electricity installed with the main idea of being free from battery troubles; but once they have it, it does not necessarily follow that they are going to use electricity for lighting. We find in many such cases a great deal of the lighting is still carried out by gas. I hope this will be our experience on the Manor House Estate.

A further amount of £2,197 has been expended on extensions of the Apparatus Repair Shops at Stepney and on part cost of a new waste heat boiler. Other than these items £16,680 has been credited for depreciation and reduction of Capital, leaving a net credit as shown in the Account of £7,870.

With regard to the Revenue Account, it will be seen on the receipt side that the sale of gas brought in the sum of £561,502. This is £23,496 less than in the previous year from gas itself. The difference represents more than the 2¾% reduction in gas sales, the excess being due to some extensions of discounts.

Rentals at £89,225 is less by £4,248, which is mainly due to the sale of so many cookers and fires to which I will refer later. Residuals at £184,342 shows an increase of £10,500 principally due to improvements in the coke and tar receipts. On the expenditure side the cost of coals—owing to the decreased quantity carbonized—is less by £7,331. The remaining items for manufacture were £7,842 more. Distribution, as I have already pointed out, at £209,350 was £12,860 more, and savings were effected on the remaining items.

The total expenditure was £2,892 more, which, after adding the reduction in the total receipts (£16,864), makes the balance of gross profit £19,756 less, at £114,555.

After deducting the interim dividend, debenture and other interest, and bringing into account the balance carried forward from the previous year, there remains a balance of £64,323 16s. 2d. already mentioned.

Sales of Appliances.

As regards the sales of appliances, during the years 1930 to 1933 we sold an average of about 2,000 stoves each year, the numbers varying from 1,870 to 2,118. Last year, however, no less than 7,408 have been sold—viz., cooking stoves 6,763 and 645 fires and water heaters, the majority being on hire-purchase terms, which are apparently as attractive in the matter of gas apparatus as in some other directions to which I need not refer. This, of course, also requires capital, but as it ensures the use of gas it is, to say the least, expenditure that is not only advisable but necessary.

While it is not the Board's wish to minimize the seriousness of the continued reduction, though slight, in the sales of gas during the past few years, or the probable permanent effect of some of the causes, I am convinced that, given normal weather throughout the year, it will be shown that the demand for gas—owing to its increased use for industrial as well as domestic purposes—will be kept up and that the Company's sales, in spite of its restricted area, will again have an upward tendency.

The Accident at Wapping.

There is one matter, in conclusion, of importance to which I have not yet referred, and that is the serious accident which occurred at the Company's Wapping Works.

Owing to the collapse of a tower scrubber, due to some settlement or defect of the foundations, a fire occurred at the works about mid-day on Saturday, Jan. 26. The scrubber, in falling, broke a 15-in. main which was supported on the wall of the valve-room, and the gas from this main ignited. Although the flow of gas was quickly shut off on the works side, on which we have absolute control, the flame from the fractured pipe made it impossible to reach the valves dividing this main from the outside distribution system, and gas from the district mains continued to flow back and burn at the fracture, and it became necessary to open up and cut off the gas in the streets surrounding the works before the flame could die out. A full supply of gas was maintained throughout the occurrence.

Fortunately no person sustained any injury with the exception of one fireman, who slipped into a liquor tank and whose eyes were temporarily affected by the ammonia.

Wapping Works, the smallest of the Company's three stations, stand on a congested site, and but for this fact the fire would have been of short duration, because we should have been able to cut off this 15-in. main.

I now formally move:

> "That the Report and Accounts be received, adopted and entered on the Minutes."

The DEPUTY-CHAIRMAN (Mr. A. M. Paddon, M.Inst.C.E.) formally seconded the motion, and, there being no questions or comments, the CHAIRMAN put it to the meeting, and it was carried unanimously.

Dividends.

The CHAIRMAN then moved:

> "That, pursuant to the recommendation of the Board of Directors, a final dividend be declared for the year ended Dec. 31, 1934, at the rate of £3% on the ordinary stock of the Company, less income-tax, payable on Feb. 22, and that warrants for the same be forwarded by post to the Proprietors."

The DEPUTY-CHAIRMAN seconded this, and it was agreed to.

New Capital Issue.

The CHAIRMAN: The next resolution on the agenda is with reference to the raising of further capital. It is many years since the Company has issued stock of any description—in fact not since the year 1909 (*i.e.*, 26 years ago). This does not mean, however, that additional capital has not been required. Doubtless those of you who compare the yearly accounts will be aware that since the war the Balance-Sheet has disclosed a temporary loan of varying amounts year by year. Borrowing from the Company's bankers has been, and still is, a more economic proposition than issuing stock, but there is a limit to the amount it is desirable to raise in this way, and the Board therefore recommend that they be authorized to raise further sums as and when required. As I have already mentioned—in addition to the temporary loan from our bankers—money will be required for replacing the old type cookers by vitreous enamelled ones, and partly for the cost of erecting the cottages at Poplar. Money will, in addition, be required to finance the hire-purchase sales. This, however, is liquid capital and will be gradually repaid.

At the present time the sum the Company has power to raise is £124,664—*i.e.*, without a further issue of ordinary stock. This sum would only partly meet our requirements. The Board decided, therefore, to apply to the Board of Trade, under the Gas Undertakings Act, 1929, for an increase of the existing powers from 50% of the paid-up capital to 70% of the paid-up capital. The application needs your authority, and will be dealt with at the Extraordinary Meeting which will follow the present meeting, but I refer to it here as the authority which we now ask for is intended to include the additional powers (if any) granted by the Board of Trade Order. I beg to move:

> "That the Company do create, and the Directors be and they are hereby authorized to issue, under the powers of the Commercial Gas Acts, 1902, 1918, and 1934, and/or the Gas Undertakings Acts, 1920 to 1934, at such times, in such amounts, and manner, and on such terms, and either redeemable or otherwise, as they may think fit, debenture stock not exceeding in the whole such sum or sums as the Company at the time of issue is authorized to raise."

Mr. STANLEY H. JONES, M.Inst.C.E., seconded this, and it was agreed to.

Re-Election of Directors and Auditors.

The CHAIRMAN moved that the retiring Directors, Mr. F. H. Jones, M.Inst.C.E., and Mr. F. McLeod, J.P., be re-elected Directors of the Company.

Mr. B. R. GREEN seconded this, and it was passed.

Mr. H. F. HILLS moved that the retiring Auditor (Mr. G. W. Ilsley) be re-elected, and this was seconded by Mr. R. S. YOUNG and agreed to.

Mr. ILSLEY, in thanking the shareholders for his re-election, remarked that he had completed thirty-two years as an Auditor of the Company's accounts.

Vote of Thanks.

The CHAIRMAN said one thing he must by no means omit was to propose that the thanks of the meeting be accorded to the officers and workpeople for their efforts on the Company's behalf during the past year. It was in times such as had been experienced last year, and still prevailed, that the loyalty and

nergy of their staff were most to the front, and played a more important part than at other times in securing such successes as might be achieved. He could speak in the highest terms of the staff, with whom he was frequently in touch. His contacts with them always produced a feeling of happiness in his heart, which was a personal affair, but it also brought to his mind the fact that the Company had a very able body of officers and workpeople to safeguard their interests.

Mr. YOUNGS seconded this, and it was unanimously passed.

Mr. B. W. ELLIS said that before they passed to the Extraordinary Meeting, he wished to propose a hearty vote of thanks to the Chairman and Directors of the Company for their care of the interests of the shareholders during the past year. They had had from the Chairman a most interesting address, which they would lay to heart. With regard to the change-over in fashion from the old style of cooker to a more ornamental type, though this might upset things a little during the transition period, it meant anchoring the business to gas, which was the all-important thing. They had to thank the Board also for looking after the interests of the staff and workpeople, as they always did.

Mr. WELBY seconded this, and it was heartily agreed to.

The CHAIRMAN, responding on behalf of his colleagues and himself, said that perhaps a vote of this character was deserved a little more than usual, because times were not easy. It was becoming more realized that the activity which the Industry had been going through in regard to the production and uses of gas must go a step further—that was, to a consideration of the basis of the charges made. The more he looked into the present method of charging for gas—and more especially when he made comparisons between it and some other distributed energy—the more he was brought to the conclusion that something should be done. Their Company had a measure of freedom in this matter, which they achieved some years ago. For many years they were bound by the sliding-scale principle, which depended on a certain standard price being charged for gas, any increase on which automatically lowered the dividend. Such variations arose, of course, from a great many causes, and not necessarily from bad management, which was the point in mind when the sliding-scale was introduced. One of these causes he had referred to that day—namely, the alteration of the habits of the people. Though the Company had to meet the same charges in furnishing supplies, the consumers spent less time in their houses, and so used less gas. Therefore the possibilities of further relief in the matter of methods of charge would have the close attention of the Board.

EXTRAORDINARY MEETING.

An Application to the Board of Trade.

The GENERAL MANAGER AND SECRETARY then read the notice convening an Extraordinary Meeting.

The CHAIRMAN: Ladies and Gentlemen,—It has been necessary to call this meeting in compliance with the provisions of Section 67 of the Companies Clauses Consolidation Act, 1845, in order that your approval can be obtained to an application which has already been made to the Board of Trade under Section 1 of the Gas Undertakings Act, 1929, for increased borrowing powers. The present borrowing powers of the Company are one-half of the amount realized by the issue of " capital " stock paid up (including premiums thereon). At the present time this amounts to £1,787,427, one-half of which is £893,713. The amount already borrowed is £769,049, leaving the sum of £124,664 at the moment available for issue. Incidentally I would mention that prior to the exchange of ordinary stock for debenture stock in the year 1932 the amount available was very much more, but this operation, which provided no new money, substantially reduced the amount remaining to be borrowed. The Board therefore decided to make an application to the Board of Trade for the increase of the Company's borrowing powers from the one-half, or 50%, to not exceeding 70% of the ordinary capital, &c. The actual authority to raise further loan capital is covered by the resolution submitted at the previous meeting, and the resolution now submitted to you is to approve the application to the Board of Trade which, as I have stated, has already been made. I beg to move:

> " That the application made by the Directors to the Board of Trade for an Order under Section 1 of the Gas Undertakings Act, 1929, empowering the Company to borrow on mortgage of their undertaking or by the creation and issue of debenture stock any amount not exceeding 70% of the aggregate amount of the paid-up share capital of the undertaking for the time being and of any premiums paid in respect thereof be, and is hereby approved."

The DEPUTY-CHAIRMAN seconded the resolution, which was agreed to without discussion.

This concluded the proceedings.

Wandsworth and District Gas Company

Annual General Meeting

The Annual Ordinary General Meeting of the Company was held at the Chief Office, Fairfield Street, Wandsworth, London, S.W. 18, on Tuesday, Feb. 19, 1935—Mr. FRANK H. JONES (Chairman and Managing Director) presiding.

The SECRETARY (Mr. W. H. Cromarty, F.C.I.S.) read the notice convening the meeting, and the Auditors' report on the Balance Sheet.

The minutes of the preceding General Meetings were taken as read.

CHAIRMAN'S ADDRESS.

The CHAIRMAN, presenting the Directors' Report and Statement of Accounts for the year ended Dec. 31, 1934 (which were taken as read), first commented on the capital account. He mentioned the item " Meters and Stoves," which in the past two years had been a substantial figure, due principally to the fact that the Company had adopted a vigorous policy of replacing the old black cookers on the district with thoroughly up-to-date all-enamel cookers of high efficiency and attractive appearance.

The heavy capital expenditure incurred during the last few years was coming very largely to an end; the fruits of this expenditure were maturing and might be expected to increase as the modern and more efficient plant came into full operation.

Due to a revised costing code, which had necessitated numerous alterations in appropriation or allocation of the costs, shareholders might have some difficulty in comparing some of the figures in the Revenue Account with those of the previous year—but the figures for 1935 would be more comparable with those of 1934. The new method made it possible to take out the minutest detail of the costs of every department of the Company, and, therefore, those responsible for the administration of the Company could have before them continuously throughout the year comparative figures of their working conditions and costs.

The cost of manufacturing was £704,000, which represented an increase on the 1933 figure; but this increase was more than offset by an increase of nearly £50,000 in receipts from residual products.

So far as the district expenditure was concerned, the total showed an increase of £10,000 over that of 1933, due largely to the Company's new policy of replacing the black cookers. Expenditure in the Management Section showed a slight decrease.

Another item to which the Chairman drew attention was Superannuations and Pension Fund. The Directors had allocated an additional contribution to this account—which he dealt with in greater detail later.

Coming to the credit side of the account, he said the receipts from the sale of gas had increased by £24,000, while the rentals of appliances also showed an increase of £2,700. The balance to the Profit and Loss Account, therefore, showed a gratifying increase of £41,000 over 1933, and the net result of the year's working, after payment of the final dividends to be recommended, was an increase in the carry forward of nearly £2,000.

The Second Century.

The Company had now entered the second century of its life, and the Chairman was pleased to be able to say that it had seldom been in a better financial position—that the Directors had never been more full of confidence for the future. This confidence in its prospects would, he hoped, be equally firm in the shareholders when he had outlined its operations and the progress which had been made during the past year.

Notwithstanding that the year 1934 was marked by exceptionally mild weather, up to the middle of November the Company's sales of gas had improved to a considerable extent over those of any other year. With the arrival of December, however—a December in which the temperature reached was on the average the highest ever chronicled in official meteorological records—the sales of gas were immediately affected, and, as a matter of course, immediately reduced. But the sale of gas over the whole year showed an increase on the previous year, though not so much as had been hoped. In spite of the conditions in December, the financial side of the Company had been entirely satisfactory, and he hoped the shareholders would not think that by mentioning December's climatic state he was in any way making apology for a year's record of which the Directors were proud. At the same time, the influence of weather conditions upon gas consumption might perhaps be more fully realized if he mentioned an extract from a letter received from the Secretary of a very large hospital which relied entirely upon gas for the heating of its building as well as for its cooking requirements for 250 in-patients. It had been noticed that during the three months ending December, 1934, the gas consumed in this hospital was approximately half a million cubic feet less than in the corresponding quarter of the previous year—when colder weather had prevailed. The Secretary had written:

> " You may take it as a very solemn fact from me that this reduction in consumption is due entirely to the milder conditions. . . ."

Turning to the works, the Chairman said the Company was

reaping the benefits of the capital expended during the last few years. At last year's meeting he had mentioned that the new discharging pier at Wandsworth was nearing completion. He was now glad to be able to report that this important extension of the Company's plant was completed and ready for operation in July, 1934, and had been in continuous service since that date. He was glad, too, to say that the results obtained had more than justified the expenditure. The Company's ships were unloaded expeditiously and cheaply, and it had been able to discharge its largest collier, the *Wandle*, carrying 2,250 tons, in a little over five hours, as compared with fourteen or fifteen hours by the previous method. Thus, the cost of coal handling was greatly reduced and considerable time was saved. To such an extent had this been made possible that the Company had been able to sell one of its colliers—the *Woodcote*—and still continue to carry the same amount of coal as was carried previously by four ships. This item alone had effected a considerable saving.

They had also been fortunate in finding a purchaser for the two discharging pontoons which had previously been in use for discharging the ships, and, therefore, had been able to reduce the Capital Account by the amount so received.

Improved Coke Market.

Comparison of the figures in the 1934 balance-sheet with those of 1933 would at once show the largely increased revenue received from coke. This was due (1) to a good market, and (2) very materially to the operation of the coke-handling plant, which had been mentioned last year as being under construction. The coke produced in the retort houses was removed solely by machinery and was screened and graded to the varied requirements of the many consumers. In this way coke of such good quality was produced that the demand by consumers continued to increase.

The benzole extraction plants at Wandsworth, Mitcham, and Sutton were completed and in operation. The Company had produced some 700,000 gallons of benzole during the year and a very satisfactory return had been received.

The Company had carried out experiments during the last eighteen months with a process of steaming in the horizontal retort houses. The first works in which these experiments were conducted were those at Sutton. So successful were the results that operations were extended, and, with modifications, introduced at Mitcham, and last year to the two horizontal retort houses at Wandsworth. The retort houses at Wandsworth had been completed only recently, but the results at Sutton and Mitcham might be regarded as very satisfactory. The therms per ton had been increased at negligible cost, no additional labour being required, the sole expense being the small amount of steam taken from the boilers, which would, in any event, be in use.

The works and plant had been well maintained and were in excellent condition. The chamber ovens had been reconstructed.

As mentioned at last year's meeting, the Company had entered into an agreement for a period of fourteen years with Messrs. Crow, Catchpole, & Co., Ltd. This tar distillery and benzole refining plant was practically completed, and the revenue earned from tar and tar products during next year might be expected to be better than during the present year.

Discussing economies effected in regard to the costs of water, the Chairman pointed out that in a works of the size of those at Wandsworth a large quantity of water was used in manufacturing processes and the provision of steam. The Company had two wells; but these were not capable of providing the whole of the water required, and until recently a large amount was purchased from the Metropolitan Water Board and also drawn from the river Thames. Owing to the very dry summer, the Thames water was becoming more silted and consequently less adaptable to the Company's use; the Directors had decided, therefore, to instal a water filtration plant, and, with the consent of the Port of London Authority, the Company was drawing more water from the Thames, with consequent saving of expense.

Another alteration in connection with the main water supply to the works had been made possible by the provision of the pier, water being taken now from mid-stream instead of by underground mains in the more muddy area near the side of the river.

These improvements, small-sounding in themselves, collectively made an appreciable contribution to the economies effected throughout the manufacturing operations of the Company.

Increased Gas Sales.

As shown by the Directors' Report, the sale of gas had increased by 2·28%; the number of consumers had increased by approximately 8,000 (there had been a similar increase in the number of consumers in each of the two preceding years, so that the increase was about 25,000 in three years), while the stoves and apparatus in other form sold during the year totalled approximately 26,000—a very large figure. These 26,000 were "major appliances," consisting only of cooking and heating stoves and hot water apparatus. The smaller pieces—gas pokers, burners, irons, and many similar appliances—were not included in this figure of sales, but they, too, had been sold in greater quantity than ever before.

The number of major appliances compared favourably with that of last year, and was nearly double the amount of apparatus sold in 1932. This item did not suggest that the Gas Industry was on the decline—on the contrary, it proved the exact reverse, inasmuch as all this apparatus was actually purchased by the consumers themselves, and, in money, represented an expenditure of £200,000. The Chairman re-emphasized that but for the material improvement in the efficiency of gas apparatus during the last years he would not have expected these sales to continue; far less would he have expected them to increase. That they did both continue and increase was, it seemed to him, convincing evidence that the Gas Industry was more than meeting the modern conditions demanded to-day. It was also convincing evidence that the Gas Industry was selling what was still the most economical form of heat, which was steadily advancing in public favour, in spite of any reports to the contrary. In short, it was the considered opinion of the Board, and of the staff, that gas was being used for a greater variety of purposes than ever before and that any fluctuation noticeable in the increase of gas consumption was attributable solely—apart from weather—to a new-born efficiency of the apparatus which, with the expenditure of less gas for each specific purpose, gave precisely the same effect for the consumer.

With a new motor-car to-day one expected to obtain better results than with a car ten years ago; the same comparison could be made with regard to gas apparatus. Not only was the Company meeting the requirements of the times, but it was gaining daily the greater goodwill and confidence of its consumers—a statement which was supported by the fact that during the year more than half a million people had visited the sixteen showrooms of the Company. The ordinary consumer was more content to-day than ever before.

The Industrial Department of the Company had shown good results. Started recently with one specially qualified engineer, the Department had increased its personnel to six specialists. New forms and ideas for the use of gas in factories were constantly being pointed out to industrial concerns, and the increase of consumption per year through this department was very considerable. It operated not only to develop the use of gas in factories, but was equally attentive to the needs of those owning factories by indicating how they could economize in the use of gas. This might reduce consumption; but it undoubtedly ensured the goodwill of the consumer by showing him that the Company regarded it as a duty to give good and impartial service.

The use of coke for furnaces and manufacturing purposes was receiving special attention and gratifying results had been achieved in this department, particularly with regard to central heating by coke boilers. There was also a firm demand for coke for domestic uses, and quite a large number of cokes fires, which were ignited by gas, were being installed. He had heard that these cokes fires were considered detrimental to the sale of gas, as they were so efficient; but he could not share this view, as, after considerable inquiry, it would appear, from the reports of those actually engaged in dealing with installations in consumers' houses, that coke fires were used in rooms where continuous heating was required, such as living rooms, whereas gas fires were most economical and could be used to greater advantage where intermittent heat was required, such as in dining rooms, bedrooms, &c.

At Manor Fields, Putney, there was a large installation of central heating by coke; it consisted of ten boilers, six of which were used for heating the building and four for hot water service, with arrangements to increase the number of hot water boilers to six when necessary. Approximately 170 flats were heated by this installation. The Company undertook the whole service in connection with the heating in this case; it provided the coke, removed the ashes, and maintained the boilers, under contract. This was a line of activity which showed promise of development for the future.

More Public Lighting.

It was pleasing to report that not only had the Company maintained all the public lighting that it had a year ago, but it was in fact increasing it; one large local authority had entrusted the Company, under a ten years' contract, with a large stretch of overhead centrally-suspended lighting where previously the lamps were of small column type placed at the sides of the road. The effect of this change was very marked in this road, which carried main road traffic continuously throughout the night.

The Chairman invited the shareholders to inspect, after the meeting, a road approximately a quarter of a mile long, running through the works, fitted up with lamp columns of varying types, evenly spaced, and having varying intensity burners, to enable local authorities to satisfy themselves, by actual demonstration, what could be done with gas lighting. This road had been of great advantage to the Company in maintaining existing public lighting and obtaining new business.

A total of 57 miles of new mains had been laid, mostly in connection with new housing schemes; 22,500 slot consumers had been provided during the year with enamelled cookers in place of the old drab-looking black iron ones. The showroom at Epsom had been remodelled and a modern shopfront provided. A new showroom had been opened at Worcester Park, where very good business was being done; and a special cookery demonstration hall had been acquired and fitted adjacent to the Company's showroom at Wandsworth. This hall had been called "Therm House," and exhibitions of cookery were being presented there each week. Numerous demonstrations had been organized throughout the Company's area; they had been very well attended, and now formed a very important branch of dis-

trict activities, the Company having a staff of lady demonstrators to carry out this work.

The happy relationship between the Company's employees and the Company had been maintained during the year.

At Dec. 31 last there were 2,080 contributing members to the original Pension Fund. The total of the Fund at that date was £234,748 11s. 6d., of which £206,499 2s. 4d. was invested in first-class securities. There were 79 persons receiving pensions. The Fund had been closed so far as new employees were concerned, and a new Fund on advantageous terms had been formed in conjunction with one of the leading Life Assurance Companies for the benefit of the employees unable to join the original Fund.

Pension Fund and Co-Partnership.

The Chairman recalled a note inserted by the Directors in the balance-sheet last year to the effect that "a recent actuarial valuation of the Pension Fund has been made and discloses a substantial deficiency caused in part by the fall in interest rates. The matter is receiving the closest consideration of the Directors." As a result of very serious consideration, and after having received the best possible technical advice on the subject, the Directors had taken such steps as they were assured by the Actuaries would ensure the solvency of the Pension Fund as its liabilities accrued.

With regard to the Co-Partnership scheme, there were 1,864 members, of whom 1,537 were stockholders, holding £142,276 Consolidated Stock of the Company, which represented 10·7% of the total amount of this Stock. The average holding of the Company's employees was £92.

The shareholders would be proud and pleased to join in congratulating the Assistant Engineer to the Company—Mr. Evan Rees—on the fact that he was holding the honoured position of Mayor of Wandsworth, the largest London Borough; and they would readily agree that it was only right and proper that the services of one of the staff should be partly spared for this purpose, when it was remembered that the Company was one of the largest ratepayers in the Borough, and, therefore, was greatly interested in its economical and efficient management. (The Chairman added that Mr. R. M. Chart, a Director of the Company, had been the Charter Mayor of the Borough of Mitcham.)

The medical welfare service was still of advantage to the Company and its employees. The Chairman referred also to the Company's Sports Club; and, as an example of the men's keenness, he mentioned that a new pavilion had been built on the Company's largest sports ground at Merton Road, Wandsworth, the whole of the work entailed in this large building having been done by the Company's employees in their own time.

It was not his practice, he continued, nor did he intend, to decry the possible merits and utility of the Company's competitors in the form of coal, oil, electricity, &c., but, in passing, he emphasized that there was very little in the way of household requirements that gas could not perform as well as the alternative means available, and, he was bound to say, in a more reliable manner, without the likelihood of frequent and instantaneous failure at inconvenient times.

Referring to the practice of some architects, and, indeed, local authorities responsible for housing schemes, of constructing living rooms and bedrooms without flues and relying upon electricity as a heating medium, he said that flueless rooms could not be healthy, as flues provided one of the most efficient forms of ventilation it was possible to design; and where heating of any kind was installed in a flueless room it merely heated and re-heated the vitiated and stagnant air, with consequent danger to health. It must be apparent to every thinking person that the small amount saved by the elimination of flues could not be justified at the expense of health and hygiene.

The Directors and shareholders had reason to consider the year under review as a year of satisfactory achievement, and the future as definitely promising.

Finally, the Chairman thanked Dr. Howell, the Deputy-Chairman, and his colleagues on the Board, as well as Mr. Croft (Chief Engineer and General Manager) and every member of the staff of the Company, for the work they had done during the past year.

He proposed the approval and adoption of the Directors' Report and Statement of Accounts for the year ended Dec. 31, 1934, as audited and certified.

Dr. T. A. IVES HOWELL (Deputy-Chairman) seconded.

A SHAREHOLDER asked for the Chairman's opinion concerning a suggestion which had been made in some quarters that, in view of the keen competition between gas and electricity, such services might be taken over in the future by a public authority, as had the transport services of London.

The CHAIRMAN replied that whether or not the power, heating, and lighting services should be taken over by a public authority was a matter of opinion; although he held a very definite opinion, he would not express it publicly. But even supposing that the Government did take over such services, he could not imagine that it would confiscate the Company's property—and it should be remembered that the Company's employees owned nearly 11% of its ordinary capital. He supposed the transport services had been taken over on very fair terms, and he could not imagine anything very terrible happening to the Wandsworth Company.

The Report and Accounts were adopted.

Dividends.

The CHAIRMAN proposed that the final dividends for the year 1934 be declared at £2 10s.% on the 5% preference stock and £3 10s.% on the consolidated stock, making in all 5% and 7% respectively for the year, all less income-tax.

The resolution was seconded by Mr. R. M. CHART, and carried.

Re-Election of Directors.

The CHAIRMAN proposed the re-election as Directors of Mr. B. R. Green and Mr. J. Bertram Brown, who retired by rotation. He recalled that Mr. Green had joined the Company when it had amalgamated with the Mitcham Undertaking in 1912; and Mr. Brown, who had been a Director of the Kingston Undertaking, had been a Director of the Wandsworth Company since the amalgamation with Kingston. Both gentlemen were rendering very valuable service to the Company.

Mr. G. F. PAGE, seconding, assured the meeting that both Mr. Green and Mr. Brown were good, sound workers.

The resolution was carried.

Re-Election of Auditor.

The CHAIRMAN announced with regret, that Mr. E. L. Burton, F.S.A.A., who had been one of the Company's Auditors for 24 or 25 years, had written to intimate his intention of retiring, as from the end of 1934. That decision made one feel rather sad. The Board would use its discretion in the appointment of a successor, and in due course the shareholders would be asked to confirm its action.

On the motion of Mr. A. HARRISON, seconded by Alderman J. PLUMRIDGE, the meeting re-elected Mr. B. Hennell, F.C.A., an Auditor, at the same remuneration as previously.

Mr. HENNELL, returning thanks to the stareholders for the renewal of their confidence in him, took the opportunity to say that his relations with his fellow Auditor, Mr. Burton, had been very happy, and he was very sorry that, for reasons of health, Mr. Burton had found it necessary to retire.

The CHAIRMAN said that he had recently seen Mr. Burton, who was a great personal friend; Mr. Burton had said that he could not pick and choose, but would give up all his Auditorships, for he was getting old.

On the motion of the CHAIRMAN, the meeting passed a resolution expressing appreciation of Mr. Burton's services to the Company, and directing that that expression be forwarded to him.

Vote of Thanks.

Mr. G. CLIFTON SHERRARD proposed a very cordial vote of thanks to the Chairman and his co-Directors for the very great care and attention they devoted to the interests of the Company to which the shareholders were so proud to belong. He personally knew the Mitcham and Kingston Directors perhaps better than the Wandsworth Directors, whereas other shareholders knew the Wandsworth Directors better; but the Directors and the shareholders of the Mitcham and Kingston Companies were equally proud of the Wandsworth Directors. Wandsworth was the senior partner; the shareholders were indebted to the Chairman for the great care he devoted to their interests and for his eloquent and inspiring address.

Mr. JOHN YOUNG, who seconded, extended the vote of thanks to embrace the staff and employees. He knew that all of them, from the Chairman down to the office boy, worked as a happy family, and the shareholders were only too glad to be able to express their thanks to all concerned in the Company's business. One hoped that a very long time would elapse before all the various utility services were taken over by the Government; to do that would be to take the life out of the Industry.

The vote of thanks was carried with acclamation.

The CHAIRMAN, responding, assured the shareholders that all who were serving the Company were pulling their weight.

Commenting on Mr. Sherrard's reference to Wandsworth being the senior partner, the Chairman recalled that years ago his father had referred to the Mitcham Undertaking as the bride. At present, however, Wandsworth was selling six units of gas, and Wimbledon (which was the Mitcham Company) was selling nine; so that the bride had outgrown the bridegroom quite considerably.

This terminated the business of the Ordinary General Meeting.

EXTRAORDINARY GENERAL MEETING.

An Extraordinary General Meeting followed, to enable the shareholders to sanction the creation and issue of additional share capital authorized by the Wandsworth and District Gas Order, 1934; and to sanction the borrowing on mortgage, or by the creation and issue of additional Debenture Stock, under the powers of that Order, sums not exceeding 60% of the amount of capital raised at the time of borrowing.

The SECRETARY (Mr. W. H. Cromarty, F.C.I.S.) read the notice convening the meeting.

The CHAIRMAN explained that Parliament had given the Company power to raise further money. The Board could not raise the money, however, without the sanction of the shareholders, and they were now asked to give that sanction to raise it as and when necessary.

The necessary resolution was then proposed by the CHAIRMAN, and seconded by Dr. T. A. IVES HOWELL (Deputy-Chairman).

A SHAREHOLDER asked whether there would be preferential allotment to existing shareholders when further capital was issued.

The CHAIRMAN replied that, by law, the money must be raised in the market and there could be no preferential treatment. Under the Acts of Parliament the Directors had power to issue Debenture Stock as they liked, within the limitations stated;

but Preference or Ordinary Stock, whether raised by tender or otherwise, must be raised on the market, without preference to anybody.

Replying to a question as to whether Debenture Stock could be turned into Ordinary Stock, as another Company had done, he said that Wandsworth Company had no authority to do that. Parliament merely gave the Company power to raise a certain amount of Ordinary and Preference Capital, and to borrow in addition a sum not exceeding a stated proportion of the capital raised. The Company mentioned was a limited liability company, acting under by-laws or memorandum or articles of association, whereas the Gas Company was controlled by Act of Parliament.

The resolution was carried, and the meeting then closed.

Tottenham and District Gas Company

Annual General Meeting

The Annual Ordinary General Meeting of the Proprietors of the Tottenham and District Gas Company was held on Feb. 19, 1935, at the Chief Office of the Company, Woodall House, 658, Lordship Lane, Wood Green, N. 22—Mr. HENRY WOODALL, M.Inst.C.E. (Chairman and Managing Director), presiding.

The SECRETARY (Mr. Edward J. K. Fussell) read the notice convening the meeting, after which the common seal was affixed to the register of proprietors.

THE CHAIRMAN'S ADDRESS.

The CHAIRMAN said: I presume that you will, as usual, take the Report and Accounts as read. [Agreed.]

It is again a pleasure to my colleagues and myself to meet you and be able to submit what I am sure you will regard as a satisfactory Report. Last year will long be remembered as a disappointing one to the Gas Industry. Up to December things went well, but December was a disastrous month; the average temperature was the highest recorded since records have been kept, and in consequence our usual large gas fire load was lost to us. At Tottenham, in spite of this, we are fortunate in being able to record an increase in sales of 128 million c.ft. of gas, or 3·35%. This when all things are considered, including the competition we have to meet, will, I think, cause you satisfaction.

We have had a record year with regard to output of water heaters and gas cookers. The expenditure on cookers has been heavy; it is realized that our consumers now demand not only an efficient cooker but also an attractive one, and the old black cooker is being rapidly replaced by the enamelled cooker; it takes time and money to do this, but it must be done, and done quickly.

Turning to the accounts you will see that we have raised no Capital during the year, but on the contrary have repaid Redeemable Debentures to the extent of £8,100. We have expended on Capital £56,033, but we have increased our sales, and our capital per million cubic feet sold remains the same as last year. This figure of capital per million is one that is very carefully watched and its importance is never lost sight of. To show that the £56,000 has been well expended, I would point out again that we have increased our output by 128 million c.ft., and obtained 4,465 additional consumers. The total number of consumers is now 133,658.

The Revenue Account is satisfactory, and one item specially so, namely, the cost of manufacture of gas, £524,763. This figure is lower than last year by nearly £1,000, though we have made an additional 128 million c.ft. of gas. Last year I mentioned our new Retort Plant, and said we were determined to make it successful. The working of the plant has exceeded our estimate and our expectations, and has resulted in very considerable economies as shown by the figures I have given you. The cost of distribution of gas, which amounts to £244,515, is up this year by nearly £28,000, which is due largely to our policy with regard to cookers, to which I have already referred. The figures on the other side of the account are good. The increase in the sale of gas naturally brings us a larger revenue. The small decrease in the rental of stoves is due to the fact that purchase and hire-purchase of these articles has considerably increased. There is a small debit on the sulphate of ammonia, though less than last year, and we expect it to disappear this year. You will notice we have added over £6,000 to the Reserve Fund, and over £4,000 to the Special Purposes Fund. After doing this and paying our maximum dividends, we are able to slightly increase our carry forward, which now stands at the substantial figure of £52,849. The balance to the credit of Capital Account is £195,163, and the General Investments Account stands at £196,000; so it will be seen the credit balance on Capital Account is fully invested outside the Company.

A Sound Investment.

Last year I informed you that we had acquired with some of the money received from the sale of our electricity undertaking the Hitchin and Stevenage Gas Undertakings. This investment, as we anticipated, is turning out to be a sound one. During the year under review, we have been able to connect up those two undertakings, and cease manufacture at Stevenage, to the advantage of both. We have now extended our activities and have acquired a controlling interest in the Biggleswade and Shefford Gas Companies, and very shortly all the gas required in the area will be supplied from Hitchin to the advantage of all concerned. To have found this investment is a matter of considerable gratification to your Directors.

I have dealt with the accounts and shown you that our financial position is sound. There is one other matter of account to which I draw your attention, namely, the Co-partners Pension Fund. This is a most useful fund and is well invested. The total of our investments outside the Company in the fund is £250,999, and the market value £300,933. Last year the amount received from interest on investments was £13,840, the amount of contributions from the staff and men amounted to £7,807, and from the Company £13,298. Periodically we have an actuarial valuation and are satisfied as to the soundness and solvency of the fund. The Company's contribution is large, but in time this will become less. The feeling of security the fund gives to our Co-partners is great and is certainly reflected in their attitude towards the welfare of the Company. Your Directors and Officials are not only glad to know the feeling of security it gives, but they particularly welcome it in these days when mechanical improvements reduce the labour required. It is rarely necessary to discharge old servants, as year by year a number of men are pensioned, and they are not necessarily replaced. It is pleasant to think we have now 78 pensioners happy in having a reasonable provision for old age.

We are still successful in maintaining our public lighting. On Jan. 31 last year we had 9,391 public lamps; on Jan. 31, 1935, we had 9,673, an increase of 282. This is very satisfactory, in view of the competition from electricity. We are losing some of our public lighting, but, as I have stated, last year we obtained more than we lost. As you know we have competition from the Mercury Vapour Discharge Lamp. The high candle power and comparatively low cost of this lamp appeals to the Local Councils in spite of the grave disadvantage of the colour. So far we have had no lamp to compete with this, but we now have a lamp, which, while equally good from the illuminating point of view, has the advantage of a satisfactory colour. We have every hope that this lamp will commend itself to the Local Authorities.

Faith in the Future.

I take this opportunity of giving a few reasons for our success in the past and for our faith in the future. Perhaps first I should say we have most able and efficient officers and capable and willing workpeople, for which we have to a large extent to thank those who inaugurated Co-partnership and Pension Funds in connection with our Company.

Next we have a splendid district of supply. In this connection I would call your attention to the growth of business in our added areas of Waltham, Hertford, Hoddesdon, and Ware. I told you that our total increase for the year was 3·35%. In Waltham area the increase was 3·69%; in Hertford 4·52%; in Hoddesdon 14·17%; and in Ware 7·09%—showing that with our larger resources we are able to improve results in added areas. Another great advance has been in the sale of gas for Industrial Purposes. In 1933 we had an increase in our Industrial Load of 13%, while last year the increase was 27%. During the year a total of 679 industrial appliances have been installed for all sorts of purposes, which reflects great credit on the Industrial Section.

Coke fires are becoming daily more popular; in 1933 we fixed 2,000 coke fires, and in 1934, 3,523. Coke fires ignited by gas are, as I know from personal experience, attractive and economical, and one is glad to be using smokeless fuel. Great care is taken to grade and screen the coke for use in these fires which I can strongly recommend.

We pride ourselves on our service to consumers, and are enlarging and improving our Showrooms, of which we have a large number throughout the district. During last year nearly half a million consumers called at the Showrooms for one purpose or another. We carefully consider the amenities of the district when we erect Showrooms, and I should like to quote you a letter, entirely unsolicited, which we received recently shortly after our new Showroom had been opened by the Mayor of Hertford in December last. It is as follows:

> "I feel impelled to write and congratulate your Company and its Architect on the charming shop front of your Hert-

ford Showroom. It is quite flawless in design, harmonises perfectly with the old house it occupies, and is in every way an added beauty to the town. No doubt you have had many compliments more valuable than mine, but the shop gave me such pleasure on a recent visit to Hertford that I cannot help writing to thank you for your care for the amenities of the town. I trust that the business done at the branch will show that beauty is no bar to success, but can be a great asset to trade."

The gentleman writing this letter is quite unknown to any of us, and we are naturally very pleased to receive it.

My last point is the popularity, of gas with those who have to use it. In our district there are hardly any houses in which gas is not used for some purpose. We are not so unwise as to assert that gas is best for all purposes, but you will be interested to know our experience last year. There were 4,199 new buildings sold or let in our district, and to these 4,276 cookers were supplied, 1,354 fires, 9 circulators, 589 geysers, 3,876 coppers, and 1,146 coke boilers; these figures speak for themselves. To supply 11,250 appliances in 4,199 new houses, in addition to a number of lighting points, shows the activity and enterprise of our sales men and women.

A Preference for Gas.

One other case I should like to tell you of. The case in point is of a new Corporation Housing Estate in a district supplied with gas by a Company of which I am Chairman. The Corporation is an enlightened one and agreed that my Company should be allowed to pipe the houses, and they themselves wired them for electricity. The tenants were then given a free choice of what they should use, gas or electricity. Up to date 107 houses have been occupied—

The number using gas for all purposes is 78 (45 of those, however, have electric light in some of their rooms).
The number using electricity for all purposes is 20.
The number declining to use either gas or electricity is 9.

When you realize that the bulk of our gas is sold to small consumers you will understand how very refreshing it is to feel that intelligent people with small means, where given freedom of choice, by a large majority choose gas to do their lighting, cooking, and heating. With the knowledge of the facts I have given you, you will not be surprised that those of us engaged in the Gas Industry are by no means downhearted.

We have the best of heating agents, and if, as the Industry generally is doing, we make the best of our many opportunities, we shall continue to succeed. Tottenham, as I said before, is a wonderful district; there is growth in every direction, both domestic and industrial, and in the hands of our energetic and progressive officials, I have every confidence in the future of the Company.

I now have pleasure in moving:

> That the Report of the Directors and Statement of Accounts for the year to Dec. 31, 1934, be received and adopted and that the Report be entered on the Minutes of the Proceedings of this day.

The DEPUTY-CHAIRMAN (Mr. Henry Bailey) having seconded this resolution, the CHAIRMAN asked if the proprietors had any points to discuss arising out of the motion.

A SHAREHOLDER observed that the Company had borrowed a sum of £70,000 from their bankers during the year, and inquired what had been done with this money.

The CHAIRMAN explained that this loan had been applied to the ordinary business of the Company, adding that it was often advisable to negotiate a temporary loan from one's bankers—who were very obliging in this respect—by reason of the fact that money was at present very cheap, so that it was better to borrow from the bank than issue further capital.

ANOTHER SHAREHOLDER said that he had observed that three electric lamp standards had been erected in a gas-lighted thoroughfare, which, as a result of their greater height, somewhat dwarfed the gas lighting.

The CHAIRMAN stated that the electric lamps in question were sample lamps being put up for the local Council to see, and that their Company were to have an opportunity later to show what they could do with gas.

Alderman F. W. CHURCH remarked that they were all very grateful for the explanation given by the Chairman. He thought they could "shake hands with themselves" on being shareholders in the Tottenham and District Gas Company. They went on from strength to strength. In spite of the mild winter, they had recorded an increased output of over 8%, and they owed a great debt of gratitude to the Chairman and Directors for the way in which they had managed the business of the Company.

The CHAIRMAN then put the resolution for the adoption of the Report and Accounts to the meeting, and it was carried unanimously.

Dividends.

The CHAIRMAN thereafter proposed:

> That a dividend at the rate of 5½% and 5% per annum respectively on the Preference Stocks, and £6 15s.% per annum on the Ordinary Stock, all less Income-Tax, be declared for the half-year ended Dec. 31, 1934, payable on Feb. 27 next, and that the Dividend Warrants be sent to the Proprietors by post.

The DEPUTY-CHAIRMAN seconded this proposition, which was unanimously agreed to.

Re-election of Directors and Auditor.

The CHAIRMAN said that it was a very pleasant duty to propose that Mr. Thomas Goulden—one of the retiring Directors—be re-elected a Director of the Company. There were many faces present that day, he said, that he had seen there before, and those who had been there before would all remember Mr. Goulden, and they would all wish to see him for many years to come. He had had as great experience as any Gas Engineer in the Kingdom, and they were glad to have the benefit of his help and advice.

The DEPUTY-CHAIRMAN seconded this resolution, which was carried unanimously.

Mr. THOMAS GOULDEN, in acknowledging his re-election, expressed his thanks for this renewal of their confidence in him, and said he would do his best to deserve it. He offered his thanks to the Chairman for the very kind way he had proposed his re-election.

The CHAIRMAN then moved the re-election of Mr. Edward Corbet Woodall as a Director of the Company, remarking that he had a great advantage over the rest of them—namely, youth and energy, both of which he devoted to their service. He was a very useful and active Director.

The DEPUTY-CHAIRMAN seconded the proposition, which was also carried unanimously, and Mr. E. C. WOODALL briefly acknowledged his re-election.

On the proposition of Mr. S. L. SANDELL, seconded by Mr. BEALE, the retiring Auditor, Mr. John Eve, F.C.I.S., F.L.A.A., was unanimously re-appointed, and Mr. EVE duly returned thanks.

Vote of Thanks.

Major E. T. GARLAND, in moving a vote of thanks to the Chairman, Directors, Auditors, Officers, staffs, and workmen for their services to the Company during the past year, said that they were deeply indebted to all these members of the Tottenham and District Gas Company. It was a great privilege to be able to stand there again and say what he had said two years ago. The proprietors had a deep feeling of gratitude to all of them for the way they managed their affairs; and they must all be delighted to be there on that occasion to accept this statement and know that the affairs of the Gas Company were improving rather than the reverse. It was nice to know that they were receiving £6 15s.% at a time when the bank rate was giving about ½%.

The vote of thanks was seconded by Alderman CHURCH, who cordially endorsed all that Major Garland had said; and the resolution was carried unanimously.

The CHAIRMAN, in acknowledging the vote on behalf of himself and his colleagues, said that this was a very pleasant Company to be connected with. They had very efficient staff and devoted workmen. In addition, they had a staff with some imagination, for when they lost their electrical undertaking they looked about and found methods of extending their business in other directions. It was, as Major Garland had said, very difficult to find investments which gave anything like a reasonable yield, but in their associated companies they had an investment which was going to bring in a very fair return. And it was because they had enterprising people connected with the Company that this was possible. Their works were a model of their kind, and their Chief Engineer, Mr. H. C. Smith, received many compliments from other Engineers who saw them; and they would do their very best to keep these works and their district in thoroughly good order—and go on paying dividends.

In conclusion, he proposed a very hearty vote of thanks to their Officers and workpeople. Results such as they showed could only be obtained when they all worked together in harmony and all did their best to pull their weight.

This vote of thanks was heartily accorded.

Mr. H. C. SMITH acknowledged the vote on behalf of the engineering staff and workpeople. It was pleasing, he said, to have this vote of thanks at the end of a year's work, and they hoped at the end of the current year to merit a similar vote. They had every confidence in their future. It was not often that the Officers had the opportunity of publicly thanking the Directors for the way in which they guided them; their relations with the Board were most happy. In these days one could not rest on one's oars and say that the things they did five years ago were good enough for the future. They had to be prepared for competition and changes of policy almost every week. In conclusion, Mr. Smith thanked the Directors for the kindly consideration they gave to any suggestions that were put before them, whether in regard to manufacture or distribution.

Mr. E. J. K. FUSSELL associated himself with Mr. Smith's remarks in regard to the help and sympathy they received from the Board of Directors. Without such assistance, he said, it would be quite impossible to carry on. But they relied upon their workpeople for help in their daily task, and the latter were satisfied in knowing that the work they did was rewarded by the co-partnership bonus; and then at the end of their working days they had their pensions to look forward to, which was much appreciated. As regards their Undertaking, the shareholders must be very proud of it and its associated companies; the future was hopeful and pointed to success.

The meeting then terminated.

Croydon Gas Company

Annual General Meeting

The Annual Ordinary General Meeting of the Croydon Gas Company was held at the Company's offices, Katharine Street, Croydon, on Friday, Feb. 22, 1935. Mr. HENRY WOODALL, J.P., M.Inst.C.E. (Deputy-Chairman), presided, in the absence, due to illness, of Mr. Wm. Cash, J.P., F.C.A. (Chairman).

The SECRETARY (Mr. Frank F. Wood, F.C.I.S.) read the notice convening the meeting.

The minutes of the preceding Annual General Meeting were read, confirmed and signed; and the Deputy-Chairman signed the Register of Proprietors, to which the Seal had been affixed.

CHAIRMAN'S ADDRESS.

The DEPUTY-CHAIRMAN said: Ladies and Gentlemen, I am sure you will agree with me in saying how very sorry we are that Mr. Cash is not able to be with us to-day. He is not very well; I know that he would not stay away if he could possibly help it, but his doctor insists that he must not go out. Mr. Cash has asked me to tell you how very disappointed he is in not being with us on this occasion, when we have so much pleasure in meeting you here to submit what I am sure you will all consider to be a very satisfactory report.

The first resolution I have to move is as follows:

> "That the Report of the Directors and the Statement of Accounts for the year ended Dec. 31, 1934 (a copy of which has been sent to each Proprietor), showing a balance of £95,105 4s. 2d. available for dividends, be and the same are hereby received and adopted, with the exception of the paragraphs relating to declaration of dividends and the election of Directors and an Auditor, which are to be considered separately."

The Report and Accounts were taken as read.

Mr. Cash has sent to me the speech which he had prepared for to-day's meeting and has asked me to read it to you. It is as follows:

"Turning first to the Capital Account, the expenditure on new buildings and works is for the most part made up of a sum applied in purchasing the Head Lease of the William Cash Workshops and on the completion of the stores, canteen, and laboratory at Waddon. This accounts for more than £20,000 out of the £23,319 in the statement. The rest of the expenditure on new mains and meters is incurred to meet the continuing expansion of the Company's business, and the net expenditure for the year after deducting depreciation and works displaced amounts to £32,000.

"It has been our practice here in past years to give you a number of statistics as to the work which the Company is doing. This year I have had prepared some slips, which you have in your hands, and which will be circulated to all the proprietors, giving you a number of statistics. Out of these I will select only one or two for quotation.

"We have added 4,827 new consumers, the total now being 94,415, and we have laid 33 miles of new mains, making the total now 541 miles, and I think we may regard these figures with satisfaction because they go to prove that in new houses and in the new districts now developing within our area people still require gas and that no house is complete without it.

"The other satisfactory feature which I would like to emphasize is that throughout our district we have an ample supply of gas at an adequate pressure at all times.

"Turning to the other side of the Capital Account, you will see that during the year we have not raised any additional capital.

Increased Gas Sales.

"I now turn to the Revenue Account, which I do not propose to go through in detail. The comparative figures for 1933 are set out and they mostly speak for themselves. We have to record a small increase in the sale of gas. To the end of November we showed an increase in gas sent out of 2½%, but in December we experienced a very mild month, compared with December, 1933, which was a very cold month, and this brought about a heavy drop in the output. A similar experience was felt throughout the country, and in Croydon we are particularly susceptible to weather conditions because we carry a very heavy heating load. The smallness of the increase is also partly due to the fact that we now have to supply a very large number of comparatively small houses, and also because the apparatus which we are supplying is designed to use less gas. In other words, it is so because it is economical and efficient. Furthermore, it is undoubtedly true that the habits of our consumers are changing and particularly in the summer time there is a tendency to do less cooking at home and to rely on ready-cooked food.

"There is one other source of gas sales to which I would refer and that is gas sold for public lighting. The gas industry generally, and this Company in particular, can efficiently light the streets both as regards the intensity of light and effusion of light. On these two points a great deal of discussion has taken place all over the country. The Company is always prepared to submit schemes of lighting to meet the particular requirements of any area of supply. As regards the cost, here again this must depend upon the particular requirements of each area, the character of the road, and so forth.

"The relative cost of gas and any other illuminant must depend on the way in which the scheme is worked out. These matters are highly technical and it is very important that competitive costs should be made on a comparable basis.

"I am somewhat afraid that there is a tendency to turn over from gas to electricity merely because there is a feeling that electricity is more up-to-date and gas is old-fashioned. In view of the improvements in modern gas lamps available for street lighting, it therefore seems to me most unfortunate if all the road disturbances and the alterations necessary on the change-over are incurred without some really adequate reason for the change.

"Again, when a gas company such as ours has laid mains and provided all the facilities for public lighting at considerable expense, especially where the company is a local undertaking employing local labour and local capital, and paying local rates, it does seem to me that it ought not to be dispossessed if it has done its duty in the past, merely to satisfy some temporary fashion.

"It is manifestly unfair to compare public lighting which, in the past, may have been inadequate, through no fault of the Company, with a newly designed scheme at a much enhanced cost furnished by another illuminant.

"Turning to the expenditure side, there is some increase for coal and oil, &c., due in part to the tax on oil and in part to the production of benzole, but cost of manufacture shows a small decrease. Residuals, including benzole, have done well.

Rating Assessment.

"As referred to in the Directors' Report, there has been a very substantial increase in the charge for rates, due to the quinquennial revaluation of the Company's undertaking. The Directors have been professionally advised in this matter and are not proceeding to appeal. The whole system of assessment of public utility undertakings is very unsatisfactory and has been considered by the conjoint conferences, where gas, water, and electricity are all represented. Under the existing law, appeals lie to a variety of tribunals, both Assessment Committees and Quarter Sessions, and a decision before one body does not bind the other. Representations will shortly be made to the appropriate body in the hope that something may be done to simplify the present procedure.

"Turning now to more general steps to meet the competition with which we are faced every day, I am happy to be able to tell you that we have a well organized undertaking, and at the same time to pay a tribute to the General Manager and all his staff.

"From the slips you will see how successful we have been in the sale of cookers and fires, including a large number sold on hire-purchase. We have a regular advertising campaign with a number of showrooms all over the district and three more sites available when the time comes to build upon them. Our sales of apparatus last year came to £89,923—a record figure. We give demonstrations in cooking; undertake the maintenance of burners; equip our showrooms with new and improved types of apparatus; and, above all, ensure quick attention to the wants of our consumers. I have seen a number of cases bearing testimony to the satisfaction of our consumers with what we do for them. But it is important to remember that this is no new policy on the part of this Company, and, therefore, while the Industry is being urged in certain directions to wake up and take steps to increase the sale of gas, this Company in a sense has already done so much in this direction that we cannot expect to derive from this policy a continued and ever-increasing percentage increase on what we have already accomplished. As an example of what I mean, I may tell you that in our new Oxted area the sale of gas last year showed an increase of 8¾%.

"The final figure on the Revenue Account is the profit, which you will be pleased to see is some £4,000 more than a year ago. In the Net Revenue Account you will observe that we have repeated the allocations of 1933 of £10,000 to the Pension Fund and £1,009 to the Reserve Fund, and increased the allocation to the Renewal Fund from £5,000 to £7,500. Our carry-forward, after payment of the dividends, will be £48,101, or £1,564 more than we brought into account.

"I should like you to know that the investments of the Reserve, Insurance, and Pension Funds stand at a figure in the Balance Sheet which is below the market value on Dec. 31 by £102,700, of which £76,700 belongs to the Pension Fund.

"On the asset side of the Balance Sheet there is a new item—'Trade Investments.' For many years past we have disposed of our tar to distillers on a co-operative basis and an opportunity was afforded last year, not only to this Company but to other gas companies, to join with a firm of distillers, and a new Company has been formed in which the gas companies interested were entitled to participate in the issue of capital to the extent of the quantity of tar that they put into the scheme. The gas companies now have the controlling interest in this Company, the distillers, still retaining nearly one half of the capital, acting as Managers.

Methods of Charge.

"Last year the Industry obtained from Parliament another Act by which we are now able to make changes in our method

of charging for gas if desirable. We are investigating the whole question and giving very careful consideration to the various methods that are available under certain conditions, such as the two-part tariff and the block charge. I can assure you that any changes that may be made shall be such that will benefit both the consumer and the Company, but even now the Industry has not attained the full freedom of action for which many of us had hoped when the 1934 Act was under consideration.

"Looking ahead at the coming year, I am still confident that we shall continue to prosper. It is becoming more apparent every day that gas can be used for so many different purposes that our field for expansion is still very great. For certain purposes lighting by gas is superior to that of any other illuminant. Cooking by gas is recognized as the most satisfactory means available either to the householder, hotel-keeper, or restaurateur. As a heating agent by gas fires, or for central heating or for the provision of hot water, we have nothing to fear, and in such modern methods as the use of gas for refrigeration or for illuminated signs there are fresh fields which we can explore. All these are continually before us. We are well served by the whole of our employees; we have a modern works in the hands of a most capable Engineer, and the whole of our undertaking is in first-class order."

That, ladies and gentlemen (continued the Deputy-Chairman), is our Chairman's speech. Usually he asks me to say a few words about the works. In speaking about the works I am reminded that the death occurred on Jan. 9 last of our late Engineer, Mr. Caddick, who served the Company well and faithfully for 28 years. We are all sorry that he should have enjoyed his retirement for so short a time, and we shall miss his presence among us.

This morning I visited the works with our Engineer, Mr. Grogono, and was as usual greatly impressed with the appearance and efficiency in all departments. It is interesting to note that our Engineer has, in every year during the seven years he has been with us, shown a decrease in the cost of manufacture of gas, a result with which we are very satisfied, and of which he has reason to be proud. I should like the Proprietors at some time to see the works and be able to appreciate their property and the way in which it is maintained.

Mr. CHARLES HUSSEY, J.P., seconding the resolution for the adoption of the Report and Accounts, reinforced the expression of regret that Mr. Cash was unable to be present, and the hope that he would soon be restored to health and able to resume his usual activities.

He felt sure that every proprietor must have derived great satisfaction and pleasure from the Directors' Report and the Accounts, for there could be no question that they must be considered very satisfactory. Considering the very mild winter, the accounts were even better than perhaps the Directors themselves had expected.

There was no response to the Deputy-Chairman's invitation to the meeting to discuss the Report and Accounts, and the resolution for their adoption was carried unanimously.

Dividends.

The CHAIRMAN then moved:

"That dividends at the following rates per annum for the half-year ended Dec. 31, 1934—viz.:

7½% on £120,000 Redeemable Preference Stock,
5% on £569,590 Maximum Dividend Stock, and
7% on £807,560 Sliding Scale Stock,

making with the interim dividends declared by the Directors and paid Sept. 1, 1934, dividends for the year at the respective rates of 7½%, 5%, and 7%, be now declared and payable on March 1, 1935."

He commented that the profits earned were well able to pay those dividends.

The resolution was seconded by Mr. HAROLD WILLIAMS, O.B.E., F.S.I., and was carried.

Re-Election of Directors and Auditor.

The meeting re-elected Mr. Henry Woodall, J.P., M.Inst.C.E., and Mr. William Cash, Jr., M.A., F.C.A., Directors of the Company; and Lieut.-Col. W. C. Smith, D.S.O., M.A., F.C.A., an Auditor.

Votes of Thanks.

The CHAIRMAN proposed a very cordial vote of thanks to the Company's officers, staff, and workmen. The results for 1934, he said, indicated that the Company had a most efficient staff, and the staff would say that they had most efficient workmen. The speech prepared by Mr. Cash had shown that the Pension Fund was a very sound one; both that and the Co-partnership Fund were very carefully watched by the Directors and were perfectly sound. It was very pleasing indeed to know that on the retirement of those who had worked so well for the Company some provision was made, and often very adequate provision, for their old age. Of course, the Company owed its prosperity to the manner in which everybody concerned worked together. The chief officials appreciated that the people connected with the Company pulled their weight, and that they constituted a very fine team.

Mr. CHARLES HUSSEY, J.P., seconding, said he did not think any Company in England, or in the world, could be better served by its officers and workmen than was the Croydon Gas Company.

The vote of thanks was carried with acclamation.

Mr. WILLIAM J. SANDEMAN, M.Inst.Gas E. (General Manager), was glad of the opportunity to respond, because it enabled him to pay his tribute to the employees, who had done their work during the past year extremely well. He was disappointed not to have been able to show a greater increase of gas sales; but the Company could not control the weather.

Enlarging upon the statement in the Directors' Report, that the condition of the plant and mains was excellent, he said the Company was in a position to deal with any demands that might be made upon it, which was a very satisfactory state of affairs.

Mr. BARHAM, moving a vote of thanks to the Chairman and his co-Directors for their conduct of the Company's affairs, said they were a very able body of Directors, of whom any Company could be very proud. He also moved that a letter be forwarded to Mr. Cash on behalf of the proprietors, regretting his absence and wishing him a speedy recovery to health.

Mr. BADCOCK seconded the motion, which was carried with acclamation.

The CHAIRMAN responded, and said that a letter would be forwarded to Mr. Cash in the terms indicated.

Suggested Visit to Works.

Mr. BARHAM recalled that some years ago, when some alterations were made to the works, the proprietors had been invited to inspect them; he intimated that they would appreciate another such opportunity.

The CHAIRMAN replied that perhaps an invitation could be extended to the proprietors in due course.

The meeting then closed.

Gas Undertakings' Results for 1934

Blyth.

The annual report and statement of accounts of the Directors of the Blyth Gas Company for the year ended Dec. 31, 1934, show that the revenue amounts to £42,572 and the expenditure to £33,328, leaving a profit on the year's working of £9,244. The Directors recommend that a dividend of 4%, less income-tax, on the ordinary stock be paid, making, with the interim dividend paid in August last, £8% for the year 1934, and that the balance of £10,939 be carried forward to the next account. The Directors record with deep regret the loss the Company has sustained by the death of Mr. George Cocks, who rendered valuable service during the period he was a member of the Board. The vacancy has been filled by the appointment of Mr. Albert J. Turnbull.

Cambridge.

The Directors of the Cambridge University and Town Gas-Light Company, in their annual report, record with regret the serious loss sustained by the Company in August last by the death of Mr. J. W. Auchterlonie, the late Engineer and Manager, who had held the office during the past 32 years. To fill the vacancy thus caused the Directors have appointed Mr. H. Shewring, formerly Engineer and Manager of the Gas Department of the County Borough of Rochdale. An interim dividend at the usual rates, less income-tax, was paid in August for the half-year to June 30 last, and the Directors recommend the declaration of a dividend at the same rates, less income-tax, for the half-year ended Dec. 31.

Colchester.

The report of the Directors of the Colchester Gas Company for the year ended Dec. 31, 1934, states that the sales of gas in the June half-year showed an increase of 4,382,000 c.ft., but owing to the exceptionally mild weather experienced at the end of the year there was a decrease in the December half-year amounting to 2,109,000 c.ft., leaving a net increase for the year of 2,273,000 c.ft., or 0·76%. During the year plant was installed for partially removing water vapour from the gas as it leaves the works. This was brought into use in July, and beneficial results have already been experienced in an improved supply to the consumers. The gross profit on the revenue account amounts to £16,225, compared with £16,053 in the previous year. Interim dividends were paid in September at the following rates: £5% on the "A" shares, £3 10s.% on the "B" shares, and £3% on the 6% preference stock, and the Directors recommend the payment of final dividends at the same rates, and that such dividends be payable, less income-tax, on March 1. The full dividends for the year, therefore, will be £10% on the "A" shares, £7% on the "B" shares, and £6% on the 6% preference stock. The Directors consider that it is in the best interests of the shareholders to build up the reserve funds, and to strengthen the financial position, and they have accordingly set aside £1,000 from the profits of the year to the special purposes fund.

[*Further Undertakings' Results will be found on pp.* 529-531.]

South Suburban Gas Company

Annual General Meeting

The Annual Ordinary Meeting of the Proprietors of the South Suburban Gas Company was held at the Abercorn Rooms, Bishopsgate, London, E.C. 2, on Friday, Feb. 22, 1935. The CHAIRMAN of the Company (Dr. Charles Carpenter, C.B.E., M.Inst.C.E.) presided.

The SECRETARY (Mr. T. Brown, B.Com.) read the notice convening the meeting.

The minutes of the previous Annual Ordinary Meeting were taken as read.

The Register of Proprietors was sealed, and the Secretary read the certificate to that effect.

THE CHAIRMAN'S ADDRESS.

The CHAIRMAN, moving the adoption of the Report and Statement of Accounts for the year ended Dec. 31, 1934, said:

Ladies and Gentlemen,—I have now to move that the Report of the Directors and the Accounts be received and adopted and entered on the minutes.

The Report opens with a reference to the state of business, and in referring to the affairs of the Company I do not think I can do better than follow it. Our gas business is at once satisfactory and unsatisfactory, for on the one hand we have had a small increase in gas sales, as compared with those of the previous year, and a considerable increase in the number of our consumers. Whereas up to the commencement of November our increase in gas sales was as nearly as may be 4%, the mild weather of the last two months knocked down the figure to nearly 2%. The increase in the number of consumers, however, was 6¼% all told—10,836 as compared with 12,356 in the previous year. Also—and this is a very important point—the quantity of gas consumed per consumer has fallen by 5¼% as compared with the previous year, which itself was lower than in the previous year by 4¾%. I think this reduction is capable of a simple explanation, but the fact remains unalterable, and it does adversely affect the overhead charges we have to meet; they do not become less, but the consumption to which they are related is reduced.

It has also to be borne in mind that to-day's increases are wholly, I think I may say, in the outer areas, those in which the average consumer's needs for artificial light and heat are less than is the case with those living nearer home.

As the Report states, the item for sale and hire of appliances continues to increase, and that is in itself always a hopeful sign. Cookers and fires contributed 11,000 to the total; water heaters contributed 6,500, or 1,000 above last year's figures. The hire-purchase of apparatus continues to be popular, the year's increase being 10,232, or over 30% above that of the previous year.

On the other hand, the issued capital has increased by £350,000 during the year, by the issue of £200,000 of 4% Perpetual Preference Stock and £150,000 of 4% Perpetual Debenture Stock. The Preference Stock was allotted at an average price of £106 10s. 8·44d.%, as stated in the Report, and the Debenture Stock was sold to the Company's Brokers at the price of £108%, free of expense to the Company.

The item "Buildings, Plant, Land, &c.," comprises expenditure in connection with a new showroom at Dartford and cottage property which we have acquired, not exactly within the area of the Dartford Works, but in the vicinity, in order to round off our holding there. Whatever the purpose to which we might put the Dartford property, it is undesirable to have in the centre of it half-a-dozen or so cottages. We have had to spend money on liquor concentration plants at Sydenham and Bromley. Owing to the large-scale manufacture of Sulphate of Ammonia at Billingham, the ordinary plants usually associated with gas undertakings are no longer in a position to make both ends meet; they are not working on a sufficiently large scale. To get over that difficulty, the ammoniacal liquor made at the average gas-works to-day is concentrated to a point at which it will pay to handle it. The result has been that the liquor, which was a drug and an expense to us at Sydenham and Bromley, is now of value—not very much, but still, it is better than nothing—because it is of so concentrated a character that it pays us to transport it.

We have also had to install new compressors at Tonbridge and Sevenoaks, a booster at the Crayford holder station, and a governor house at Welling. A small charge appears in the accounts in connection with a new holder at St. Mary Cray, in course of construction.

The amounts written off are in respect of the sale of properties at Dartford, Bromley, and Allenby Road, Forest Hill, which are no longer required by the Undertaking, some machinery at Belvedere, and finally, an instalment of £2,000 in respect of the writing off of the Northfleet Works. I think there remains only one more similar payment to complete writing off the Northfleet Works from our books.

The expenditure under the headings of "Mains," "Meters," and "Stoves," which is heavy, arises principally out of the increased number of consumers during the year amounting to 10,836. These consumers have to be provided, first, with mains, in order to take the gas to them, and it is one of our difficulties that, whereas in the past extensions of residential property have occurred almost mainly with some relation to the course taken by the railways, they now spring up anywhere; if the land is available for building purposes, an estate can be started, and before the houses are ready for occupation, or not long afterwards, motor 'bus services can be provided for the transport of the residents. In the case of stoves and meters, sums amounting to £19,638 and £5,480 respectively have been written off capital.

With regard to compensation paid on the transfer of the Sevenoaks and Tonbridge Undertakings, the balance of £8,032 remaining after appropriating the balance brought forward on the revenue accounts of the two Companies is being written off against revenue at the rate of £2,684 per annum over three years, the second of such instalments having been charged in the current year.

As to the item "Co-Partnership Bonus," £15,437 19s. in the Revenue Account (Statement No. 4), this is the amount which under Section 36 (4) of the Company's 1928 Act, has to be applied for the benefit of employee co-partners, and in accordance with the Section, £7,718 19s. 6d. of that amount—*i.e.*, half of it—will be transferred to increase the amount carried to the credit of the Superannuation Fund, making up the special contribution of £31,650 for the year.

I am never very happy about this point; I would greatly prefer to have the full amount divided as part of the co-partnership principle; but at present, at any rate until we get square with the Superannuation Fund, I am afraid there is no hope. We did consider the matter very carefully this year.

During the year the number of appliances on hire, particularly water heaters, has increased rapidly. The value of these appliances (excluding meters and cookers, which have a much longer life) is being written off over a period of 2½ years, and the balance outstanding appears as a suspense item in the Balance Sheet (Statement No. 11). An essential factor in connection with a water heater is that it has to get to work and to do its work very quickly. It might interest you if I try to give you a picture of what happens on a Sunday, when a family decides to go out in a motor car, having a power of, say, 10 H.P. When the family returns in the evening some of the members may require a bath and may require something cooked; and when they start a water heater and perhaps a cooker they are starting energy at the rate of 55 H.P. That is one of the reasons why there is no uncertainty whatever, if the facts are clearly put before the public they quite understand what they are to get and what they pay for; that is one of the reasons gas is supreme in the great bulk of the operations for which it is provided. The trouble in the past, I think, has been that such facts have not adequately been brought before the users.

The total amount charged in respect of these appliances over the year is £29,989, less £22,765 written off to Revenue, making a net increase in this item of £7,224 (the amount outstanding at the end of 1933 was £22,209; therefore, it is now £29,433).

Distribution.

With regard to "Distribution of Gas" in the Revenue Account (Statement No. 4), Repair and Renewal of Meters, Repair and Renewal of Stoves and Fires, Repair and Renewal of Fittings, and Public Lamps, Lighting and Repairing, show considerable increases in expenditure. That is bound to be so, considering that our business is increasing—not very fast in regard to gas sales, but very fast in regard to the provision of apparatus and appliances. Meters include depreciation £5,480, obsolete stock £2,315, and a new Meter Shop and Repairs to Buildings cost £3,160. Our old Meter Repair Shop was hopelessly out-of-date, and we could no longer postpone the substitution of an entirely new one. Having provided the new one, we are able to do our work more economically and—not less important—we are able to do our work without the inconvenience that arose from the cramped, contracted, and confined nature of the old shop. Part of the work of the great majority of gas undertakings to-day, in addition to the maintenance of their meters mechanically, is concerned with the maintenance of the accuracy of these measuring appliances. All gas meters have to be passed by an independent authority, and cannot be used unless that authority has sealed and thereby certified them for use.

The item of stoves includes increased depreciation, £12,638; additional hire-purchase reserve, £2,440; increase in obsolete stock, £4,504; and increase of appliances on hire, £9,189. Fittings include an increase of £5,264 for fixing Appliances on hire, and the increase in the charge for Public Lamps is due mainly to the purchase of new Lamps and Controllers. Most of the Public Lamps nowadays are controlled by clocks; the old-fashioned lamplighter, with his torch, is practically a thing of the past. The clocks control the lighting up and extinguishing at varying times, which are changed every day or every week throughout the year.

In the Balance Sheet (Statement No. 11), a sum of £12,840, representing 9% of the balance outstanding for Hire-Purchase Stoves and Fittings, has been reserved in respect of interest not yet accrued due, leaving a balance of £129,811 5s. 11d. (a high figure, but perfectly justifiable).

The amount of the Suspense Account, £2,684, represents the

balance of Directors' and Auditors' compensation in respect of Sevenoaks and Tonbridge, to be written off during 1935.

Related to the large expenditure on Meters, Stoves, and Fires, there is the item on the other side of £19,000 by which those rents have increased during the year.

The amount of coal carbonized has increased by 11,000 tons. The reason for that is that less gas has been bought in bulk.

The holder at St. Mary Cray will be of 5,600 therms capacity, and the principal object of it is to increase our storage capacity in a district which is rapidly growing. As soon as the new holder is ready for use it will enable us not merely to meet demands adequately—indeed, they are being met adequately now—but to meet them without any uncertainty as to an accidental interruption. Nothing of that kind has occurred at present, but the ability to give a constant supply is a matter to which we attach great importance. "Gas never fails."

In order still further to take advantage of our association with the central manufacturing depôt at East Greenwich, arrangements are in hand to lay a 2 ft. diameter main direct from the South Metropolitan Company's system to the Belvedere Station.

During the year we have laid over 91 miles of mains to supply new properties. It is interesting that, of the new applications for gas during the year, 28 came from estates each comprising 100 or more houses. The average number of new houses on these estates was 248.

Public Lighting.

During the year we have lost 372 lamps to our competitors; but, on the other hand, we have erected 534 incandescent gas lamps, so that there is a net gain of 162. I am quite sure that if given opportunity of supplying the "Supervia" gas lamp, which has recently created something of a sensation among lighting engineers, the change referred to will not be anything like so rapid during 1935. The whole of the 7,750 public lamps, a very substantial number, supplied by the Company depend for their lighting power on the incandescent mantle. Some of you may have the idea that the incandescent mantle is a very fragile, easily damaged, device. It is fragile; if you take hold of it with clumsy fingers after it has been burned off, you will break it. But the mantles in the 7,750 lamps I have referred to last, on an average, for six months, so that each lamp requires two mantles per annum. That is a remarkable result, especially having regard to the exposed positions occupied by so many of the lamps and the conditions under which they are working.

One other matter to which I will draw attention is that the Company's district has in recent years been de-centralized. Our earlier idea of centralization has been found to be wrong and uneconomic, and we have been working de-centralized areas for some time. There are eight areas, each under the control of a local manager, and it is pleasing to record that from each of them the Board has received a promising report of improved gas prospects so far as the present year is concerned.

Our showrooms also continue to be well patronized. We have 15 showrooms, and we ought to have more still. Our latest showroom occupies a prominent position at Dartford; it was graciously opened by the Mayor of Dartford, who was accompanied by the Mayoress, and it created a large amount of local interest.

I have referred in somewhat vague and general terms to Co-partnership, and I am bound to say that, despite its present limited application to our employees, for the reasons I have given, its animating spirit continues; when the troublesome matter of the Superannuation Fund is settled this year—we have not yet had before us a scheme sufficiently acceptable to be considered—the earliest opportunity will be given to all employees now outside the Co-partnership circle to become fully participating members.

I must not forget a word of praise to the staff as a whole and to the chief officers in particular for, I am bound to say, the most admirable manner in which they have kept before them the Company's interests and the way in which they have served those interests. It is no secret that our possession of those officers is regarded with envy by some undertakings outside. So long as we possibly can, we shall retain their services.

I now formally move:

> "That the Report of the Directors, and the Accounts examined and signed by the Auditors, be received and adopted, and the Report entered upon the Minutes."

Mr. BENJAMIN R. GREEN (Deputy-Chairman) seconded.

There was no response to the Chairman's invitation to the Proprietors to discuss the Report and Accounts, and the resolution for their adoption was carried unanimously.

Dividends.

The CHAIRMAN moved the following resolution:

> "That dividends for the half-year ended Dec. 31 last be now declared on the Ordinary Stock at 3%, on the 5% Perpetual Preference Stock at 2½%, and on the 4% Perpetual Preference Stock at 2%, in each case less income-tax, making, with the dividends paid on July 31, 1934, 6% for the year on the Ordinary Stock, 5% on the 5% Perpetual Preference Stock, and 4% on the 4% Perpetual Preference Stock, all less income-tax; and that warrants for the net amounts be forwarded on March 7 next to the registered addresses of the Proprietors."

Mr. B. R. GREEN (Deputy-Chairman) seconded the resolution, which was carried unanimously.

Re-Election of Directors and Auditor.

Mr. HAROLD GUNDRY, who proposed the re-election of the retiring Directors—Mr. Frank Bush and Mr. A. M. Paddon, M.Inst.C.E—said that no further words were necessary to recommend the re-election of these two eminent and competent gentlemen.

Mr. FRANK H. JONES, M.Inst.C.E., seconded, and the resolution was carried unanimously.

On the motion of Mr. E. A. PIERCE, seconded by Mr. H. K. SCOTT, the meeting re-elected Mr. Ernest D. Davey, F.C.A., an Auditor of the Company.

Vote of Thanks.

Mr. E. A. PIERCE, on behalf of the Proprietors, proposed a very hearty vote of thanks to the Chairman and his co-Directors, and the Managers, Secretary, and all the workpeople in the Company's service.

Mr. H. K. SCOTT, who seconded, said that his family had been shareholders for very many years, and it was always a great pleasure to him to attend the Annual Meetings of the South Suburban Gas Company, for they were attended by more shareholders than were the meetings of other companies which he attended; it indicated what a large number of the shareholders of the South Suburban Company were sufficiently interested to attend and to hear the Chairman's statement.

He had been a little distressed to hear about co-partnership having fallen on difficult days, for he was old enough to remember the trial of strength that had occurred between employers and employed and was always glad to think that after that trial of strength they had worked so amicably together. He had said often that he would not like this co-partnership to fail, for it was an example to many other concerns.

The Directors of gas concerns had rather a difficult task in these days. There was another myrmidon in the field, to which the Chairman always referred in some form or another, and he was quite sure that the Company was doing its best to stand up to it. On a former occasion he had been inclined to chide gas companies for not being sufficiently enterprising, or at any rate, not so enterprising as the other myrmidon—electricity. But to-day the Gas Industry was improving in that respect, and he was very pleased to hear the Chairman say that the practice of placing the advantages of gas before the people was continuing. As a shareholder in both electricity and gas companies, Mr. Scott considered there was room for both, and he could not help thinking that the Chairman had hit the nail on the head at a meeting held on the previous day, when he had called attention to the fact that electricity companies had a rather unhappy way of presenting their charges to the people who used electricity. Whereas the gas consumer was told exactly what gas would cost him, the consumers of electricity were told by the electricity companies that the cost would be ½d. or ¾d. per unit, or something of that sort; but those who made up the accounts knew perfectly well that that was not so, and that when allowance was made for the flat rate the charge was about three times more. However, he was quite sure that the Board and their colleagues were all doing their best to keep their end up, and he congratulated the shareholders upon being served by so competent a Board of Directors.

The vote of thanks was accorded unanimously.

The CHAIRMAN, responding, said that it was many a long day since he had been so heartened—if he needed heartening—as he had been by the remarks made. The points which had been so fully before himself and his colleagues for a long time had been put very admirably and the difficulties of the situation were appreciated. He had come to this meeting with the faith which had inspired him over many years; the faith he had held had been a growth of many years, into the nature of which it had never been necessary to look so closely as it was to-day. When he compared gas with its competitive rival, his faith became stronger, and he was sure that any doubts that might have existed with regard to the Gas Industry's ability to meet the intensive competition to which it was exposed had been due partly to the fact that the Gas Industry had not taken to heart sufficiently the methods of its competitors. When it did—and it was going to—he had no doubt whatever as to the result. He had always made a point of being extremely frank with the shareholders of the undertakings with which he had been associated, and he made no exception to that rule when he expressed the opinion that the prospects of gas, in spite of what was stated in the papers and despite the advertising, were never so well-founded and never so hopeful as to-day. It was simply a case of applying knowledge which the Industry had gained—and perhaps it had been rather backward in doing that—to the present conditions.

The Ordinary Meeting then closed.

EXTRAORDINARY MEETING.

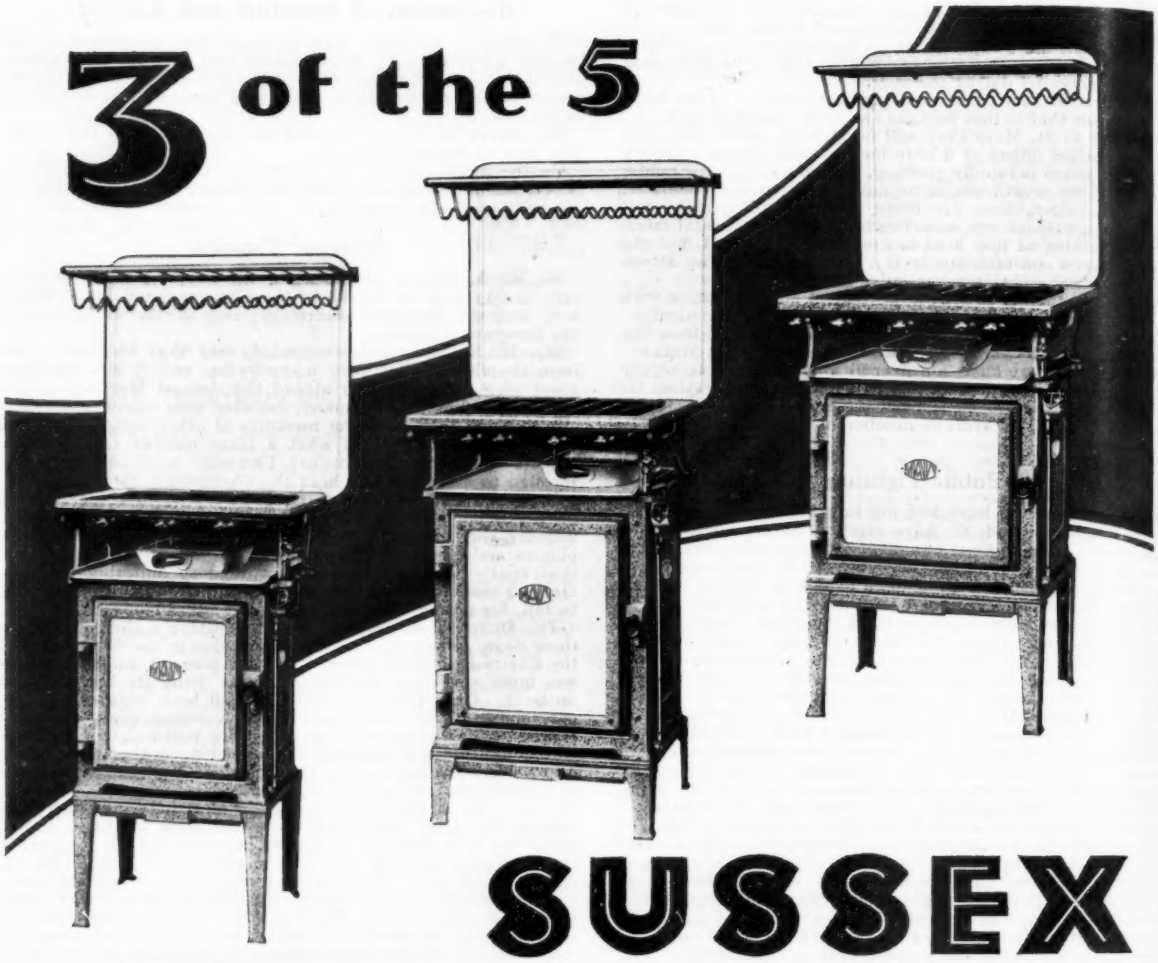
An Extraordinary Meeting of the Proprietors of the Company was then held, for the purpose of considering, and, if thought fit, of approving, a Bill proposed to be introduced into Parliament by the Company in the present session.

The SECRETARY (Mr. T. Brown, B.Com.) read the notice convening the meeting.

The CHAIRMAN explained in the first place that the Bill was largely necessary by reason of the expiry of the time during which the Company could work under the powers given to it five years ago.

The title of the Bill was "A Bill to confer further powers upon the South Suburban Gas Company; and for other pur-

3 of the 5



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The Ovens are designed on the top-flue principle, with auxiliary outlets which provide that equalised temperature so necessary to successful automatic control. Thus they ensure good top browning heat without the aid of a browning shelf.

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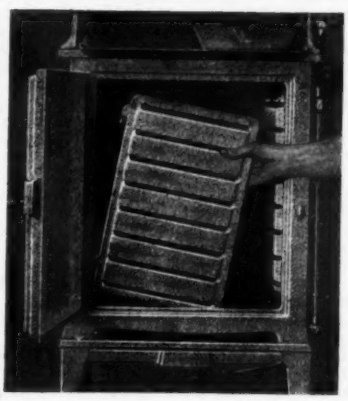

● The Enamelled Oven Hangers or Grid Shelf Supports are of a new stamped design, flat in shape, with slots for the Grid Shelves, and are easily removable for cleaning. When in position in the oven they afford protection for the enamelled oven linings.

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MAIN

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poses." The preamble mentioned the three most important points in it—*i.e.*,

(*a*) Re-definition of the limits of supply and of the differential price areas, having regard to the Kent Review Order, 1934.
(*b*) The scheduling of additional lands for the manufacture of gas and for the storage of gas.
(*c*) Additional capital powers.

Dealing seriatim with the Clauses of the Bill, the Chairman said that the first gave the short and collective titles, the second provided for the incorporation of general Acts, and the third was the interpretation clause.

Clause 4 re-defined the limits of gas supply, having regard to the Kent Review Order of last year. That Order made important alterations to local authority boundaries in Kent, especially in those areas where urbanization had been proceeding apace. An example was that of the old Bromley Rural District, where the parishes of Keston and Hayes had been transferred to the Borough of Bromley, West Wickham had been transferred to the Beckenham Urban District (shortly, probably, to become the Borough of Beckenham), and the remainder of the old Bromley Rural area had been very substantially enlarged and had become an urban area under the title of the Orpington Urban District. The Clause did not alter the Company's limits of supply; it simply re-defined them, because the old definition was out-of-date. Just as Clause 4 re-defined the limits of supply, so Clause 10 re-defined the differential price areas within those limits in terms of the Kent Review Order.

Clause 5 was in exactly similar terms to Section 42 of the Company's 1932 Act, and authorized the raising of additional capital not exceeding in the whole £500,000 by the creation and issue of Ordinary or Preference Stock. Increased capital powers were rendered necessary by the development of the Company's business and the large numbers of additional consumers.

Clause 6 brought forward into the Bill general provisions with regard to capital powers contained in the Company's Consolidation Act of 1928 (in 1928 the Company's many Acts were compressed into one).

The Gas Undertakings Act, 1929, gave a general power to borrow by the issue of Debenture Stock up to an amount not exceeding one-half the amount received in respect of any share capital issued; it also provided that the Board of Trade could, by Order, increase the proportion from one-half to the full amount of the paid-up share capital and premiums; a number of Orders had been made by the Board of Trade authorizing borrowing powers up to 90% of the issued capital. Clause 7 of the Bill, after authorizing the Company to borrow £1,184,674 without obtaining a certificate of a Justice of the Peace, had provided, as originally framed, for increased borrowing powers of from 50% (authorized by the general Act) to 75% of the share capital issued; but as the result of conversations it was proposed to reduce the latter to 70%, to which he did not think there would be any opposition. There was a reason for the authorities keeping an eye on capital proposals of this kind; conditions changed, and it was obvious that a gas company could not work to-day under conditions which were current, and perhaps quite proper, 25 years ago. The attitude of the public authorities was that an undertaking should have sufficient capital to be able to carry on for a reasonable time, but not for an unreasonable time; and that was the whole object of the so-called capital limitations. Such limitations would not be operative in an ordinary commercial undertaking. The borrowing powers in the Bill would enable the Company to take advantage of any specially favourable terms on which additional capital required might be raised by means of Debenture Stock.

The purpose of Clause 8 was to make quite clear the equality of ranking of Preference Stock, and did not make any alteration to stock already issued. It meant that any new Preference Stock would have the same rights as that previously issued.

Clause 9 was the usual clause providing that capital monies raised under the Act should be applied only to capital purposes.

Clause 10 dealt with the re-definition of the differential price areas, already referred to in connection with Clause 4; and Clause 11 made clear the relation of the differential prices to the "South Suburban" Clause contained in Section 39 (2) of the Company's 1928 Act. The "South Suburban" Clause provided that if a price in excess of the basic price were charged to the ordinary consumer, the dividend should be limited to the basic dividend. Clause 11 of the present Bill exempted the authorized differentials from the operation of the "South Suburban" Clause. The Company had previously asked Parliament for a general application in its area of the common method of arranging gas charges by differentials, but was unable to persuade Parliament to do so. In regard to several of the Company's areas, however, there were powers to impose differential prices, and Clause 11 excepted those areas from the operation of the "South Suburban" Clause.

Clause 12 dealt with the price to be charged for gas supplied to local authorities for street lighting. The question of the supply to local authorities was first dealt with in Sections 24 to 27 of the Gas-Works (Clauses) Act, 1871, which referred expressly to gas for public lamps, and the obligation was that local authorities should not be charged more for gas for public lamps than the price charged to other consumers. Clause 12 of the present Bill made it clear that the obligation as to price for gas supplied to local authorities was in respect of street lighting, and that the price should not be higher than the lowest rate from time to time charged to any domestic consumers in the same area. That ruled out any suggestion that the price charged for special trade purposes was the price which the local authority could require to be applied to gas for public lighting.

Clause 13 repealed Section 7 of the Tonbridge Gas (Charges) Order, 1922, which specified the additional charges to be made in respect of prepayment meters at Tonbridge, and by its repeal would bring the position in that area into line with the rest of the Company's area.

Clauses 14 to 19 inclusive were administrative provisions and were common clauses, for the purpose, generally speaking, of making alterations of a detailed character in the light of present-day requirements, to the administrative provisions concerning the management of the Company—such as power to give notice of meetings by letter instead of by public advertisement, &c.

Clause 20 authorized the use of land scheduled in part 1 for gas manufacturing purposes and in part 2 for gas storage purposes.

Clause 21 was another common clause making clear the right of the Company to provide, maintain, and equip sports or recreation grounds for the use of employees.

The next four clauses dealt with matters concerning supply. Clause 22 conferred upon the Company power, in a similar manner to the Company's general powers, to lay and maintain pipes in streets bounding or abutting upon the limits of supply for the purpose of supplying premises within the area of supply.

Clause 23, entitled "Relief from obligation to supply," was a common clause, which would relieve the Company of the obligation of supplying if the supply to the consumer in question necessitated the laying of a main which, in respect of its length or size, would be unduly onerous. The clause would enable the Company to make terms with the consumer upon which such new or enlarged supply might be given, and provision was made for arbitration in the event of dispute.

Clause 24 gave the Company the right of access at all reasonable times to its meters, for inspection and other purposes; and Clause 25 gave the right to make a charge not exceeding 1s. for special meter readings made at the request of and for the convenience of any consumer.

The last four clauses of the Bill dealt with miscellaneous matters. The first two paragraphs of Clause 26 referred to the Superannuation Scheme, and covered a mere matter of detail; the wording of the previous Act was not very clear. The third paragraph of Clause 26 provided for a reduction of the rate of interest payable by the Company on deposits held in respect of consumers' accounts, from 5% to 3%, having regard to the changed value of money. (There are not many such deposits nowadays.) This provided an indication of the manner in which gas undertakings were limited in regard to what they could do, and how they must obtain chapter and verse in Acts of Parliament in order to make a change in their methods, even though the change were reasonable and were agreed to by everybody. Because a change was contradictory to the provisions of a clause in an Act of Parliament passed many years ago, they were not able to make the change without going to Parliament.

The fourth paragraph of Clause 26 arose from a power conferred by Section 46 of the Company's 1928 Act, whereby an employee might nominate a person to receive stock or deposits belonging to him in the event of his death. In some cases there had been hardship because, perhaps years previously, an employee had omitted to revoke his nomination on marriage. The Company now proposed to provide that such revocation should be automatic in the event of marriage.

Clause 27 was an enabling clause relating to the recovery of monies due.

In Section 43 of the Company's 1928 Act it was provided that the Company should, not later than the session 1935, promote a Bill in Parliament to afford an opportunity for a revision of the basic price fixed by the 1928 Act. The present Bill (Clause 28) provided that opportunity, and itself contained a similar provision for the promotion of a future Bill, not later than the session 1942.

Finally, Clause 29 was the usual clause, enabling the costs of promoting the Bill to be charged wholly or partly to revenue.

The Chairman then moved:

> "That the Bill now submitted, entitled 'A Bill to confer further powers upon the South Suburban Gas Company; and for other purposes,' be and the same is hereby approved, subject to such additions, alterations, and variations as Parliament may make therein and the Directors may approve."

Mr. B. R. GREEN (Deputy-Chairman) seconded.

Mr. H. K. SCOTT asked whether the Directors intended to renew the application to Parliament, which previously had failed, for power to adjust prices by differentials in the different parts of the Company's area of supply, or whether they had decided definitely to give up the attempt.

The CHAIRMAN replied that the opinion expressed by the House of Lords was so definite that they had decided to drop the proposal in respect of the Company's limits, except the Tonbridge, Sevenoaks, and Northfleet areas, which were the most recent acquisitions, and to which differential charges already applied. The Company had been very fully advised on the matter; it had to make the best of things, which meant that the consumers in Sydenham would, so long as the present conditions continued, pay more for their gas than they would do if what he considered a more just equalization of charge were applied as between the more closely packed and the more scattered areas. Parliament

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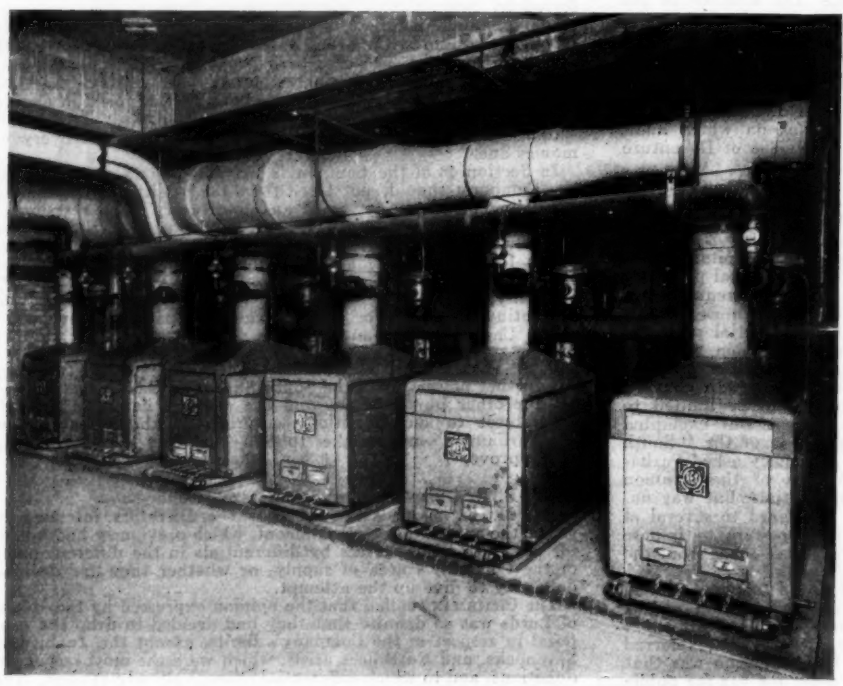

● Potterton's Gas Boilers are installed for the seventh time for the warming of the overhead galleries of *The British Textiles Exhibition, White City, Wood Lane, Shepherd's Bush.*

A further important installation is now being prepared for Hot Water Display on the Stand of The South Suburban Gas Company at *The South London Exhibition, Crystal Palace*, opening on 6th March, of which your inspection is cordially invited.

Preparations are also in hand for the installation of Potterton's Gas Boiler for Automatic Hot Water Supply in the King's House to be erected at the "*Ideal Home*" *Exhibition, Olympia.*

CATALOGUE ON REQUEST

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had given a very full and careful consideration to the Company's case, and he did not think it would be policy for the Company to try again so soon after its last attempt had failed. If conditions did not adjust themselves in the future, of course, there was nothing to prevent the Company making another application to Parliament; but there must be a rest period, inside which the Board could see what justification there would be for trying again. So that, while the Company could not bind itself as to the course it would take in the future, for the immediate future it was proposed to allow matters to stand as they were.

The resolution for the approval of the Bill was carried unanimously, and the Meeting closed.

Gas Undertakings' Results for 1934

Barnet.

The report of the Directors of the Barnet District Gas and Water Company for the year ended Dec. 31, 1934, shows that the quantity of gas sold has increased by 2·13%. An additional gasholder with a capacity of 2,000,000 c.ft. has been erected and brought into use during the year. On Dec. 10 last, £25,000 4½% preference stock was offered by the Directors for sale by tender, the stock realizing with premiums the sum of £30,436. After placing to renewals (gas and water) funds the authorized contributions, the payment of debenture and other interest and interim dividends for the half-year to June 30 at the authorized rate of 7% per annum on the ordinary stock and 4½% per annum on the preference stock, and the placing of £5,000 to general reserve, there remains a balance of available profit of £65,007. The Directors now recommend the declaration of dividends, less income-tax, for the half-year ended Dec. 31 last, on the ordinary stock at the rate of 7% per annum, and on the preference stock at the rate of 4½% per annum, leaving to be carried forward a sum of £44,364.

Brighton.

The Directors' report of the Brighton, Hove, and Worthing Gas Company for the year ended Dec. 31, 1934, states that pursuant to the provisions of the Brighton Gas Order, 1934, the acquisition of the Undertaking of the Littlehampton Gas Company became effective as from July 31, 1934. The accounts under review thus include five months' business in the Littlehampton district. The sale of gas for the year in the Brighton, Hove, and Worthing districts shows an increase of 3·39% compared with the previous year. After charging the revenue account with £15,000 for the special purposes fund, the profits for the year, including interest received, and an amount realized on the sale of a temporary investment, amounted to £132,556 17s. 7d., to which must be added the sum of £48,918 8s. 8d. brought forward from the previous year, making a total of £181,475 6s. 3d.; after deducting therefrom the sum of £33,546 13s. 9d. for interest, income-tax, &c., transferring £11,000 to the contributory pensions fund, writing off part of the costs relative to the acquisition of the Worthing and Littlehampton Undertakings and charging the costs of the Special Act (1934), &c., a balance of £129,594 4s. 2d. remains available for disposal. Interim dividends declared by the Directors for the half-year ended June 30, 1934, were paid as follows: £3% on the "B" preference consolidated stock; £3% on the "D" redeemable preference stock; £3 15s.% on the 6% standard consolidated stock; and £3 7s. 6d.% on the 5% standard consolidated stock (all less income-tax); and the Directors now recommend the declaration of dividends for the half-year ended Dec. 31, 1934, being the final dividends for the year, at the same rates. These appropriations (including the interim dividends) amount to £81,361 4s. 8d., leaving a balance of profit of £48,232 19s. 6d. to be carried forward.

Canterbury.

The report of the Directors of the Canterbury Gas and Water Company for the year ended Dec. 31, 1934, states that the mild weather experienced during the latter part of 1934 is responsible for the decrease of less than 1% in the quantity of gas sold, as compared with the preceding year. The Directors have pleasure in stating that they have authorized a decrease of 5d. per therm in the charge for gas as from the last reading of the meters. After payment of interest on the loan capital, there is standing to the credit of the dividend account the sum of £8,713. An interim dividend of £4% having been paid in August last, the Directors now recommend a further dividend of £6%, less income-tax, making the uniform dividend on the total capital £10% for the year.

Chester.

The report of the Directors of the Chester United Gas Company for the year 1934 shows that the balance of net revenue account, after payment of interest and dividend on debenture and preference stocks and the interim dividend on ordinary stock, has been increased to £13,649, from which the Directors recommend the payment of a dividend on the ordinary stock of £3¼%, making £5¾% for the year. The amount to be appropriated for this dividend will be £5,416, leaving a balance to carry forward of £8,233. The Directors have had under consideration the need of renewing, and also enlarging, the present carbonizing plant of horizontal retorts, and have decided to replace the plant with a modern installation of vertical retorts. The erection will be carried out during the summer months. The cost of the new plant will necessitate the issue of additional capital. On the other hand, substantial economies in manufacture of gas will ensue. The output of gas for the past year was 474,714,000 c.ft.

Cork.

The Directors' report and statement of accounts of the Cork Gas Consumers' Company for the half-year ended Dec. 31, 1934, state that there is some increase in rental due to the ever-growing use of gas for lighting, heating, and cooking purposes. The slightly lower return from residuals is due to a reduction in the sale of coke during the mild weather which prevailed for most of the period and a falling-off in the use of tar for road-making. The balance of profit and loss is £4,532, with which the Directors propose to pay the usual dividend at the rate of 8% per annum. The Engineer's report states that retort settings Nos. 1, 2, and 3 are due for thorough overhaul and repairs, and while this work is in progress there will be a careful inspection, with adjustment and repairs where necessary, of the whole of the steel and ironwork mountings of No. 1 bench of retorts.

Derby.

The Directors' report and statement of accounts of the Derby Gas Light and Coke Company for the year ended Dec. 31, 1934, state that an interim dividend of 3½% was paid on the ordinary stock for the June half-year, and the Directors now recommend a final dividend of 5%, making 8½%, less income-tax, for the year. The Company's business continues to extend, consumers having increased in number during the year by 1,504, bringing the total to 53,409. The output of gas shows an increase of 73¼ million c.ft., or over 4% for the year. The improved industrial conditions were reflected by a substantial increase in the demand for gas during the first six months, but the exceptionally mild open winter resulted in a decrease during the latter months. There has been an increase of 2,106 in the number of gas cooking stoves and fires sold or let out on hire; water heaters, 1,434; and other gas appliances for domestic and industrial purposes, 2,439; making a total increase of 5,979 for the year. A further £20,000 has been transferred to the development fund account, which has now reached the authorized amount of £100,000, and has been credited to the capital account in accordance with the Derby Gas Order, 1930. The bulk supply of purified coke oven gas from Blackwell and Clay Cross coke ovens fully justifies expectations, and during the twelve months 58·43% of the gas supplied was obtained from these sources. Cavendish Street Works, Derby, and the Belper Works remain shut down as regards gas production. The Directors much regret the loss the Company has sustained by the death of their esteemed colleague, Mr. Matthew Attwood. To fill the vacancy, the Board have elected Mr. G. F. Tomlinson.

Dorchester.

The sales of gas by the Dorchester Gas and Coke Company show a slight decrease, due to the mildness of the weather which continued throughout the autumn until the end of the year. The price of gas was further reduced at the end of the June quarter from 10·22d. to 9·77d. per therm, or 2d. per 1,000 c.ft., making the price equivalent to 3s. 8d. per 1,000 c.ft. During the year under review over 90% of the share capital in the Company has been acquired by the South-Western Gas and Water Corporation, Ltd. This has involved a change in the Directorate, and in consquence of this change the Company have lost the services of Mr. J. Whittle Fudge as Chairman of the Directors. The continuing Directors have placed on record their appreciation of his long connection with the Company over a period of 30 years, and his unfailing interest in all matters of the Company and its success. The vacancy thus caused has been filled by the appointment of Mr. H. G. Palmer, nominated by the above Corporation. The Directors recommend a final dividend of 6%, less income-tax, on the preference capital and 10%, free of income-tax, on the ordinary capital.

Eastbourne.

The report of the Directors and accounts of the Eastbourne Gas Company for the year ended Dec. 31, 1934, state that the sale of gas for the year was 2,904,633 therms. The balance at the credit of the profit and loss account available for final dividends, after payment of the interim dividends in respect of the half-year ended June 30, 1934, and providing for interest charges &c., is £10,761. The Directors recommend the declaration of dividends for the half-year ended Dec. 31, 1934, being final dividends for the year, at the following rates (all less income-tax)—viz.: On the "A" stock at the rate of £8 10s.% per annum, on the "B" stock at the rate of £7% per annum, and on the 5% preference stock at the rate of £5% per annum, making a total distribution for the year of £8% per annum on the "A" stock, £6 10s.% per annum on the "B" stock, and £5% per annum on the 5% preference stock. These dividends will absorb the sum of £10,521, leaving a balance of £239 to be carried forward. In June last £30,000 5% preference stock was

issued, the premiums on which, after deducting expenses, amounted to £6,604. Under the provisions of the Eastbourne Gas Order, dated Dec. 31, 1934, the Undertaking of the Seaford Gas Company, Ltd., was amalgamated with this Company as from Jan. 1, 1935. On Feb. 27, 1934, the Company purchased the whole of the share capital of the Heathfield Gas Company, Ltd. Since obtaining control of this Undertaking, mains have been extended, a number of new consumers have been added, and the sales of gas show a very satisfactory increase. The Directors regret to report the death on Nov. 28, 1934, of Mr. C. J. Vinall, who had been a Director of the Company for thirty years.

Gloucester.

The report of the Directors and statement of accounts of the Gloucester Gas Light Company for the year ended Dec. 31, 1934, state that the Directors recommend a dividend of 5% per annum on the consolidated ordinary stock of the Company (less income-tax) for the year ended Dec. 31, 1934, of which an interim dividend for the half-year ended June 30 last has already been paid. The Directors retiring by rotation are Messrs. George Evetts and Geoffrey Murton Gill, and each being eligible offers himself for re-election. The Directors regret to record the death of Mr. David Benjamin London which occurred on July 17. He had been an auditor of the Company for twelve years, since August, 1922.

Harrogate.

The report of the Directors and statement of accounts of the Harrogate Gas Company for the year ended Dec. 31, 1934, show that the profit on revenue account amounts to £33,474. The net revene account after payment of interest on debenture and dividend on the preference stocks, co-partnership bonus for the year 1933, and an interim dividend on the new consolidated stock, shows an available balance of £34,123. The Directors recommend the payment of 3% on the new consolidated stock (making the maximum 6% for the year), £8,114, and co-partnership bonus for 1934, £1,891, leaving a balance carried forward to net revenue account of £24,118.

Hartlepool.

The report of the Directors of the Hartlepool Gas and Water Company for the year ended Dec. 31, 1934, states that the profit for the year, after including grants received from H.M. Treasury under Development (Loan Guarantees and Grants) Act, 1929, and paying interest on debentures, &c., is £28,140, which, together with the sum of £23,890 brought forward from last year, makes a total of £52,030. After paying an interim dividend of 2½%, less income-tax, there remains an available balance of £37,847, out of which the Directors propose to declare a final dividend of 2½%, less income-tax (making 5% for the year), absorbing £14,183, and leaving a balance of £23,665 to carry forward to the next account. The Directors report with deep regret the death in September last of their colleague, Mr. Robert Hardy, who had faithfully served the Company as a Director since 1910. The Directors have filled the vacancy thus caused by the appointment of Sir William Gray, Bart., D.L., J.P., of Tunstall Manor, West Hartlepool.

Hornsey.

The Directors' report of the Hornsey Gas Company for the year ended Dec. 31, 1934, states that there was a decrease in the sales of gas as compared with 1933 of 3·4%. The revenue account shows a profit for the year of £27,701. The amount brought forward from last year's account after providing for the final dividend for 1933 is £20,641. Interest received during the year amounted to £118, making a total of £48,460. After deducting interest on debenture stock, &c., £3,617, income-tax, £213, co-partners' contributory pensions fund, £3,820, interim dividends, £10,042, and duty on loan capital, £50, the balance available for disposal amounts to £30,719. For the half-year ended Dec. 31, 1934, the Directors recommend the payment of dividends at the following rates, less income-tax: On the 5% preference stock, £5% per annum; on the 5% stock, £7 10s.% per annum; on the 3½% stock, £6% per annum, amounting to £10,042. This leaves a balance to be carried forward of £20,677. An issue of £40,000 4% debenture stock was made during the year at 103¼%.

Leatherhead.

The Directors' report of the Leatherhead Gas and Lighting Company for the year ended Dec. 31, 1934, shows that during the year the sale of gas increased by over 2%. The £9,300 of 3½% debenture stock, on which interest was paid free of tax, has been redeemed at 105%, and £11,770 of 4% debenture stock has been issued, £6,770 at 102% and £5,000 at 102½%. In August last a pension and life assurance scheme for the Company's staff and employees was inaugurated. The accounts show that, after deducting the dividends paid in September, and providing for all fixed charges and interest, there remains for division a balance of £5,710. The Directors recommend the payment of dividends for the second half-year as follows: On the preference stock 3%, making a total of 6% for the year, on the redeemable preference stock 3¼%, making a total of 6½% for the year, and on the ordinary shares 4½%, making, with the interim dividend of 2½%, a total of 7% for the year. These dividends (less tax) will absorb £4,511, and leave £1,198 to be carried forward to the next account.

Liverpool.

The report of the Directors and statement of accounts of the Liverpool Gas Company for the year ended Dec. 31, 1934, state that the total revenue during the year was £1,385,751, and the expenditure £1,187,972, leaving a surplus of £197,779, which has been transferred to the credit of net revenue account. After deducting the amount taken for payment of the dividends on the ordinary stock declared last August and providing for the preference stock dividend for the year, together with the interest on the debenture stocks and mortgages, there remains a balance out of which the Directors recommend to the proprietors under the authority, and in accordance with the provisions of the Liverpool Gas (Charges) Order, 1921, that a dividend for the half-year ended Dec. 31 last be declared of £3% on the ordinary stock of the Company. The shareholders were invited to pass a resolution empowering the Directors at their discretion to re-borrow the sum of £3,650 in respect of mortgages paid off in the year 1933. The Directors report that the Liverpool Gas Order, 1934, under which the Company takes over the Undertaking of the Formby Gas Company, Ltd., received Parliamentary sanction on Dec. 21, 1934. In accordance with the terms of the resolution passed at an extraordinary meeting of the Company held on Dec. 17, 1934, the sum of £300,000 has been raised as debenture stock at 3¼% per annum (redeemable in 1964), as from Jan. 1, 1935.

Long Eaton.

The Directors of the Long Eaton Gas Company in the report for the year ended Dec. 31, 1934, regret to announce the death of Mr. Samuel Morley, who had been a Director of the Company for 37 years, and they desire to record their appreciation of his services thus rendered to the Company over this long period. Mr. A. E. Marshall, of Long Eaton, has been elected to fill the vacancy on the Board. The usual interim dividends were paid in August last, and after payment of interest on loans, dividend on the preference shares, and making due provision for depreciation, the balance on net revenue account is £14,191. The Directors now recommend: Confirmation of interim dividends of £2½% on the "A" stock and £2% on the "B" stock paid Aug. 1, 1934, less income-tax; payment of the final dividends at the same rate as last year—viz., £6% on the "A" stock and £5% on the "B" stock, making for the year £8½% and £7% respectively, less income-tax; the carrying forward of the remaining balance of £8,298 subject to an estimated provision of £500 to the co-partnership fund. A large number of new consumers have been connected to the distribution system.

Matlock.

The report of the Directors and the statement of accounts for the Matlock and District Gas Company for the year ended Dec. 31, 1934, state that the revenue account shows a profit of £4,570; to this has to be added the unappropriated balance from the previous year of £19,832, making a total of £24,402. Against this has to be charged the interim dividend (less tax) paid in August last, amounting to £1,459, debenture interest for the year, amounting to £390, and the transference to capital account, in accordance with Section 18 of the Matlock and District Gas Order, 1934, of £11,330, leaving £11,223 for disposal. The Directors recommend the payment of a dividend for the half-year ended Dec. 31, 1934, at the rate of 10s. per share on the paid-up capital of the Company (making 8½% for the year, less tax), and the carrying forward to the current year of the balance of £9,137. In accordance with the resolutions of the proprietors which were unanimously agreed at the Extraordinary General Meeting held on Jan. 4 last, and as provided in the Sheffield Gas Company's Special Order, now before the Board of Trade, the transfer of this Company to the Sheffield Gas Company will probably take effect on March 31 next.

Newcastle-upon-Tyne.

In submitting their report together with the accounts for the year ended Dec. 31, 1934, the Directors of the Newcastle-upon-Tyne and Gateshead Gas Company state that the revenue was £990,026 and the expenditure £805,723, leaving a profit for the year of £184,303. To this sum is to be added the balance brought forward from the previous year amounting to £50,808, making a total of £235,112. The Directors recommend the following appropriation: Interest on debenture stock, loans, &c., to Dec. 31, 1934, £38,989, interim dividends paid August, 1934, on the preference stock at £2% £13,657, and on the ordinary stock at £2 10s.% £51,533; final dividends to Dec. 31, 1934, on the preference stock at £2%, making £4% for the year, £13,657, and on the ordinary stock at £2 17s. 6d.%, making £5 7s. 6d.% for the year, £59,262, leaving a balance of £58,012 to be carried forward. The sale of gas shows the satisfactory increase of 3% over the previous year. A new tariff applicable to gas supplied for domestic purposes has been introduced which offers considerable advantage to this class of consumer. The use of gas for industrial purposes continues to develop, and a steady increase is also shown in the number of consumers, appliances supplied, and public lamps erected.

North Middlesex.

The sale of gas for the year ended Dec. 31, 1934, as shown by the accounts of the North Middlesex Gas Company, shows an increase of 3·97% compared with that for the preceding year. The use of gas as the ideal fuel for central heating installations, water heating, and the intermittent heating of rooms by gas fires continues to grow in favour. The profit for the year (including interest received) after charging interest on debenture

stock and temporary loans, income-tax, &c., and transferring the sum of £2,000 to the contributory pension fund, amounts to £23,338, which, with £7,559 brought forward from the previous year, makes the disposable balance £30,896. Interim dividends on account of the year ended Dec. 31, 1934, declared by the Directors, were paid on Sept. 1 last at the following rates—viz., on the 5% preference stock, £5% per annum; on the 6% preference stock, £6% per annum; on the standard consolidated stock, £7 10s. per annum (less income-tax); and the Directors now recommend the declaration of final dividends for the year ended Dec. 31, 1934, at the same rates. These appropriations (including the interim dividends) amount to £23,174, leaving £7,722 to be carried forward to the credit of the profit and loss account for the current year. During the year £20,060 6% standard consolidated stock was issued, realizing £31,800, the proceeds being credited to capital account. The Directors have elected Mr. Lawrie Trewby to a seat on the Board on his relinquishing the office of Engineer and Manager, which he had held for the past thirty-two years, and have appointed Mr. K. R. Gandon to succeed him in that position.

Oakham.

The Oakham Gas and Electricity Company, in their accounts for the past year, report that profits for the Department, before tax, were £1,594. After deducting £465 debenture interest there remains a net balance of £1,129. The Directors have transferred £308 from the reserve to meet the heavy charge of dismantling and partially rebuilding a gasholder, making a balance of £1,438. A final dividend, less tax, on the 5% and 6% preference shares is proposed, but the Directors regret they are unable to recommend payment of a dividend on the original or additional ordinary stock and shares.

Oxford.

The report of the Directors of the Oxford and District Gas Company for the year ended Dec. 31, 1934, states that the Directors recommend payment of dividends for the half-year ended Dec. 31, 1934, at the full nominal rate per annum on the 5% and 4½% preference stock and the 6% redeemable preference stock respectively; and at the rate of 10% per annum on the consolidated ordinary stock; all less income-tax. These payments, with the interim dividends on the 5% preference stock, 6% redeemable preference stock, and consolidated ordinary stock paid for the half-year ended June 30, 1934, make 5%, 6%, and 10% respectively for the whole year, and in the case of the 4½% preference stock with the interim dividend, 4½% from April 1, 1934. There has been a satisfactory increase in the consumption of gas during the year, and that the demand for all types of appliances has been exceptionally good. The Directors report that as from July 1 last it was decided that all charges for hire of meter, cooker, and fittings embodied in the charge for gas through prepayment meters should cease after a consumer has used 2,000 c.ft. per month. This reduction in hire charges benefits the prepayment meter consumers to the extent of approximately £3,500 per annum. The Directors further report a reduction in the price of gas has also been made which came into operation as from Sept. 30 last. This reduction is approximately 3¾d. per 1,000 c.ft., or ¼d. per therm, on all gas used in excess of 6,000 c.ft., or 27·60 therms, in any one quarter, and is applicable to all consumers both ordinary and prepayment, with the exception that consumers using more than approximately 43,000 c.ft., or 200 therms, per quarter, at present benefit still further under the two-part tariff which was introduced in March, 1933. This reduction is of advantage to consumers to the extent of about £3,500 per annum.

South Shields.

The report and accounts of the Directors of the South Shields Gas Company for the year ended Dec. 31, 1934, state that the revenue amounts to £121,444 and the expenditure to £101,048, leaving a profit of £20,396, as against £20,273 for the year 1933. The Directors propose a dividend on the consolidated stock at 8½% per annum, less income-tax, and on the ordinary stock at 5¾% per annum, less income-tax. A balance of £14,182 is carried forward. Notwithstanding the continued trade depression and unfavourable weather conditions the sale of gas was approximately the same as for the previous year.

Southgate.

An increase of 1·29% in the sales of gas for the year ended Dec. 31, 1934, is shown by the report and accounts of the Southgate and District Gas Company. The installation of gas appliances continues to proceed satisfactorily, and the Company's district has shown a marked development during the past twelve months. After providing for interest, income-tax, &c., and transferring £2,000 to the contributory pensions fund, the balance of profit available for distribution is £20,713, from which interim dividends of £5,585 on account of the year 1934 were paid on Sept. 1, 1934, at the following rates: On the preference stock, £5% per annum; on the consolidated (7% maximum) stock, £7% per annum (both less income-tax); and the Directors now recommend the declaration of final dividends for the year ended Dec. 31, 1934, at the same rates. This distribution (including the interim dividends) will amount to £11,520, leaving £9,193 to the credit of the profit and loss account to be carried forward to the current year. During the year an issue of £15,000 consolidated (7% maximum) stock was made by tender, the average price realized being £152 12s. 2·31d.%; the proceeds have been credited to capital account.

Southampton.

The report and statement of accounts of the Directors of the Southampton Gaslight and Coke Company for the year ended Dec. 31, 1934, state that interim dividends at the maximum rate of 5½% per annum, less income-tax, on the preference stock, and at the basic rate of 5% per annum, less income-tax, on the ordinary stock, were paid at Sept. 1 last, and the Directors now recommend that final dividends at similar rates be paid, less income-tax, for the half-year ended Dec. 31, 1934. The sales of gas for the year show an increase of 60,195,600 c.ft., or 3·83%, and the sales of gas cookers, gas fires, and other appliances continue to give excellent results. The Auditors' certificate on the accounts, furnished in compliance with the provisions of the Southampton Gas Order, 1933, shows that consumers have benefited to a great extent as a result of the reduction in the price of gas made in the early part of the year. The new 3½ million c.ft. gasholder was inaugurated on Nov. 21, 1934, and has proved satisfactory in every way.

Stamford.

The Stamford and St. Martin's Gas Light and Coke Company report a profit of £2,283 during 1934. The balance for disposal amounted to £4,565, and a final dividend of 7%, less income-tax, making a total of 13% for the year, was declared, leaving £3,710 to be carried forward. The price of gas has again been reduced by ½d. per therm, and the sales of gas have satisfactorily increased by 4%. The demand for high-class appliances has steadily increased, all previous records being broken.

Tunbridge Wells (S.E. Gas Corporation).

The report of the Directors and the audited statement of accounts of the Tunbridge Wells Gas Company for the year ended Dec. 31, 1934, show that after paying in respect of the June half-year dividends at the rate of £7 4s.% per annum on the sliding scale stock, £5% per annum on the maximum stock, and after paying all fixed charges, there is a total available balance of £37,786, out of which the Directors recommend the payment of the following dividend in respect of the December half-year—viz.: On the sliding scale stock at the rate of £7 4s.% per annum, and on the maximum stock at the rate of £5% per annum. This will absorb the sum of £8,844, leaving £28,942 to be carried forward to the credit of the current year. During the year the Company's mains have been extended to provide a supply of gas to Groombridge and Mark Cross, and are being extended to Withyham and Hartfield. The amount received for gas shows an increase over that of the previous year. The number of consumers has increased by 503 during the year, and 2,343 additional appliances have been sold or let out on hire.

Weston-super-Mare.

The total sales of gas by the Weston-super-Mare and District Gas Company amounted to over 424 million c.ft., representing an increase of 1·99% compared with the year 1933. During the year the purchase of the Cheddar Gas Company, the Burnham Gas Company, Ltd., and the Highbridge Gas Company, Ltd., has been completed, in accordance with Special Orders granted by the Board of Trade. The Company has extended its mains and is now supplying gas in Winscombe, Sandford, Cross, Axbridge, and Cheddar from its Weston Works. The Directors recommend the payment of 5% dividend on the consolidated ordinary stock, a dividend of 6% on the 6% redeemable preference stock, and a dividend of 5% on the 5% preference stock for the half-year ended Dec. 31, 1934, all less income-tax.

Wolverhampton.

The report of the Directors of the Wolverhampton Gas Company for the year ended Dec. 31, 1934, shows a net profit on the year's working, after payment of interest on the debenture stocks and contribution to the pensions fund, of £21,784. An interim dividend was paid on Aug. 29, 1934, at the following rates: £3% on the 6% preference stock, £2 10s.% on the 5% preference stock, £3 10s.% on the consolidated ordinary stock, and the Directors recommend final dividends at the same rates for the half-year ended Dec. 31; all less income-tax. They also recommend that the sum of £4,000 be placed to the reserve fund, the balance of £132 being carried forward. The Directors are pleased to report an increase in the output of gas during the year, though the abnormal mildness of the early winter materially affected the consumption during the closing two months. The demand for gas for industrial purposes shows a marked advance, and there is reason to think this will, given a continuance of improved trade conditions, be still further increased during the current year. During the past year the Directors acquired a small privately-owned Undertaking supplying gas to the village of Albrighton, just beyond the Company's limits of supply. A separate Company has been formed as owners, as a subsidiary of the Wolverhampton Company. The supply is now afforded from the Wolverhampton mains and a considerable number of new consumers have already been added to the number taken over. The Directors record with deep regret the death in October last of their esteemed colleague, Mr. Lawley T. Smith. Mr. Smith had been a Director since 1916.

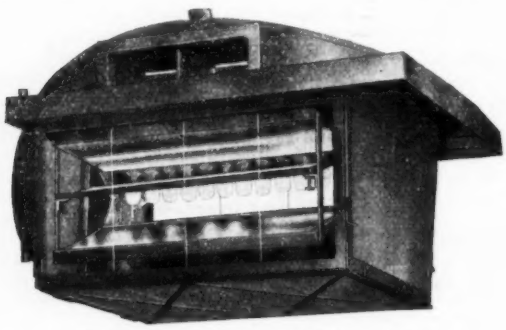
York.

The report and accounts of the Directors of the York Gas Company for the year ended Dec. 31, 1934, show that the profit for the year amounted to £29,323. The quantity of gas accounted for during the year was 3,938,239 therms. The Directors report with deep regret the resignation of their colleague, Mr. Arthur Pollard, after fifteen years of valuable service to the Company. To fill the vacancy the Directors have appointed Mr. John Grisdale. The Directors also regret to report the death of one of the Company's Auditors, Mr. Herbert W. Pulleyn.

Notes on Plant and Processes

A New "Sugg" Lamp

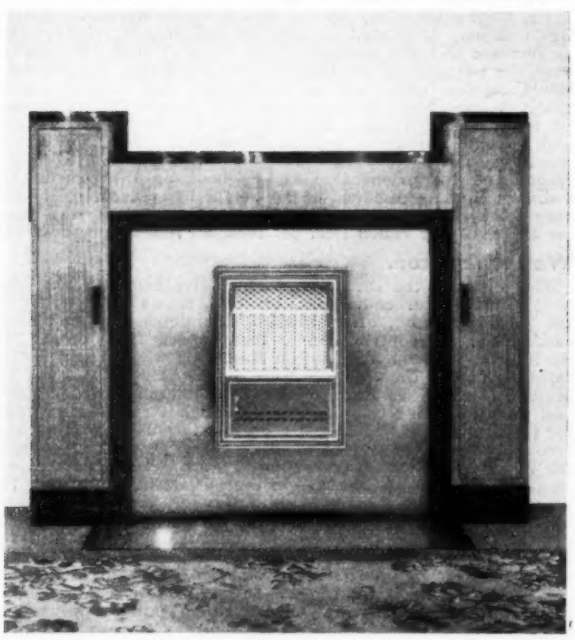
Our illustration is of an exceedingly interesting new unit by Messrs. William Sugg & Co., Ltd., which all who are interested in street lighting will wish to investigate. The fitting, which the makers have named the "London" lamp, is, it will be seen, in entirely novel form, and a closer examination reveals a construction embodying an intensive



The "London" Lamp—12-light model.

system of reflection which, we are informed, is a complete break-away from hitherto accepted notions. The makers assure us that the fitting gives remarkable results in even distribution over the roadway, and they state that further information may be had from Ranelagh Works, Chapter Street, S.W. 1.

An Attractive "High Beam" Setting



This very pleasing and modern gas fire setting, embodying a John Wright "Inlae" model of the Radiation "High Beam" range, was arranged by the Edinburgh Corporation Gas Department at a recent exhibition in that City.

New Gas Lighting Glassware

A new leaflet recently issued by Messrs. Hailwood & Ackroyd, Ltd., of Morley, nr. Leeds, describes and illustrates a number of the firm's latest glassware for gas lighting. As will be seen from the two examples reproduced here, fittings are of attractive and modern design, being constructed of "Hailware" three-ply glass, which is claimed to possess very good light transmission qualities.

The same leaflet also deals with "Hailware" bowls for gas lighting, which are also produced in a number of very pleasing and modern designs.

A Novel Cooker Display Piece

Our photograph shows a new display piece introduced by Messrs. Falk, Stadelmann, & Co., Ltd., for their "Newholm" and "Bakerloo" cookers. These displays are constructed of plywood, and are available to gas undertakings for windows, demonstrations, or showroom use. The small figure on the left is to be incorporated in the firm's future gas cooker publicity.

Two New Clarkhill Models

Messrs. Clarkhills, Ltd., have recently added two new types of water heaters to their list of productions, with a view to meeting the demands of the estate builder of houses at a price between £400 and £500 and for slum-clearance schemes.

The "Apex," which is the name of the new storage heater, is made entirely of copper in two sizes, 12 gallons and 15 gallons capacity, lagged or unlagged according to the wishes of the purchaser. The burner is of a new type, and has a cut-out fitted so that should the by-pass go out, all gas would be automatically cut off from the burner. Owing to this arrangement it is possible to fit the heater to a prepayment meter. The heat of the water is controlled by a thermostat, which is set at the works to cut off the gas at 140° F., but can be adjusted to suit the user's requirements.

The "Apex" will supply sink, bath, and lavatory basin, and hot water suitable for washing up can be obtained from the machine within three minutes from lighting up. The maximum gas consumption is stated to be 50 c.ft. per hour, and when the water reaches the full heat, the gas is cut off entirely, leaving only the by-pass alight. The heater is finished in cream enamel, and is supplied complete with baffle and stopcock.

The other machine—which is called the "Speedex"—is of a rather different type, and has been constructed with a view to fitting to existing boiler systems, so that in the summer it is possible to obtain hot water from the tank without lighting the boiler. Also, the heater will act as a booster where water is needed very quickly, as the machine is fitted into the existing flow and return. The heat of the water is controlled in this machine, as in the "Apex," by a thermostat, while the burner is the same type as that fitted to the "Apex" machine, with the thermostatic cut-off.

The "Speedex" can be obtained in either oxidized copper or in white porcelain enamel finish, and is supplied complete with baffle and gas stopcock.

Trade Notes

The "Keith" Domestic Gas Iron.

We have received from Messrs. James Keith & Blackman Company, Ltd., 27, Farringdon Avenue, London, E.C. 4, a leaflet describing their "Keith" domestic gas iron.

Fans for Industrial Work.

Descriptive folders concerning their "K-B" high-efficiency blowers, turbo blowers, exhausters, and fans have been forwarded to us by Messrs. James Keith & Blackman Company, Ltd., 27, Farringdon Avenue, London, E.C. 4.

A "Portcullis" Development.

We learn with interest that Messrs. Bratt Colbran & Co. will very shortly be in a position to supply automatic self-lighting taps on their full range of "Portcullis" Fires, and that fires fitted with the device will be displayed on their stand at the forthcoming Ideal Home Exhibition, Olympia.

Mechanical Handling Equipment.

We have received from the Marco Conveyor and Engineering Company, Rowin Works, Lynn Road, Leytonstone, E. 11, a copy of their illustrated brochure giving an outline of the variety of Marco Mechanical Handling Equipment for all industrial purposes, including coal and coke handling and screening for the Gas Industry.

Holophane-Edgcumbe Auto-Photometers.

Holophane, Ltd., of Elverton Street, Vincent Square, S.W. 1, have kindly sent us a copy of their list showing the Holophane-Edgcumbe Auto-Photometers. These instruments now cover all general requirements for measuring illumination, from the small single-range pocket model to the elaborate Holophane Special Street Lighting Lumeter.

"Holophane" Prismatic Refractors.

We have received from Holophane, Ltd., Elverton Street, Vincent Square, London, S.W. 1, a copy of their new gas list which outlines the numerous recent developments in the use of prismatic refractors for gas street lighting. The new units are the result of lengthy research, and open up a new field for scientific public lighting that should be of interest to all gas engineers.

The "Broomwade" Rotary Compressors.

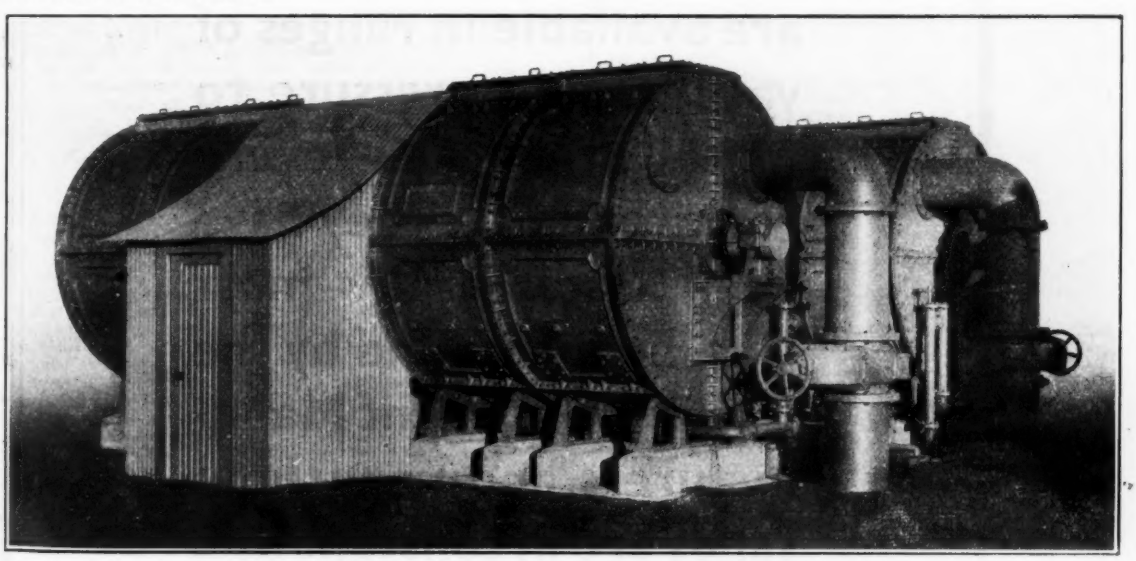
We have received from Messrs. Broom & Wade, Ltd., Engineers, High Wickham, some details of their "Broomwade" Rotary Compressors. Many advantages are claimed for these compressors, including the delivery of a continuous flow practically free from pulsations, simplicity of construction, economy in floor space, installation, and maintenance, and ease of coupling them direct to electric motors. They are available in various sizes having displacements of from 6 to 2,700 c.ft. per minute. Single stage machines are suitable for pressures up to 30 lbs. per sq. in., but could be compounded for higher pressures.

Flavel's New Cooker List.

The new cooker catalogue just published by Sidney Flavel & Co., Ltd., of Eagle Foundry, Leamington, is a very comprehensive one, containing full details and illustrations of the complete range of the firm's domestic cooking appliances. The list is appropriately entitled "The Joy of a Beautiful Kitchen," by reason of the many attractive finishes in which Flavel cookers may be obtained. Particulars are given of the firm's spiral burner which has several novel features—among them the fact that the gas enters the burner at a tangent and travels round a circular machined slot in the head, thus providing a moving flame with a whirling action.

Bread Baking by Gas.

One of the features in modern bakery is the development of ovens giving absolute control of temperature, ventilation, and atmosphere in the ovens themselves. These ovens are to be found in many cities, but so far as we are aware (states the *Dewsbury Reporter*), the only local instance of their use is at the Golden Grain Bakery, Huddersfield Road, Battyeford. Mirfield, the proprietor of which, Mr. E. Williams, has found the installation remarkably efficient. The ovens are operated on the latest principles, with accurate control at all points. We understand that Mr. Williams went very carefully into the question of the costs of baking by different fuels before finally deciding on the Cox Heat-Trap, and it has been proved beyond all doubt that these ovens not only save money, but also labour. Moreover, they ensure cleanliness and reliability. Since the ovens were introduced at the Golden Grain Bakery, sales have increased, giving added significance to the slogan, "Get up-to-date with gas."



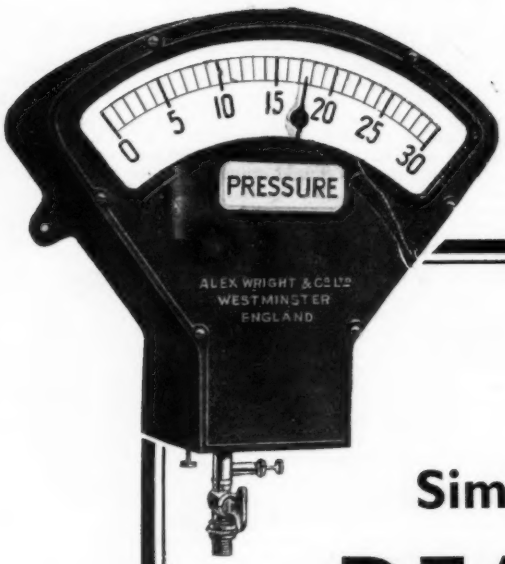
A NEW IMPORTANT FEATURE.

Dempster's Patent scrubbing medium is of light weight, thereby reducing wear on shafting—is easily removed and replaced—and eliminates all possibility of by-passing.

For the circulation of wash oil in the extraction of Benzole this improved machine ensures maximum efficiency and is equally effective for the recovery of Ammonia or elimination of Naphthalene.

R. & J. DEMPSTER LTD. MANCHESTER.

LONDON OFFICE - 34, VICTORIA ST., WESTMINSTER, S.W. 1.



Simmance Patent

DEAD-BEAT INDICATORS

are especially suitable for use on Gas Works, and are available in ranges of vacuum and pressure to meet practically every requirement. They have been installed by most Gas Engineers and by the leading Gas Plant Manufacturers, and many thousands are in constant use.

ALEXANDER WRIGHT & CO LTD

1, WESTMINSTER PALACE GARDENS, VICTORIA ST.

Telephone: VICTORIA 1207

WESTMINSTER, S.W.1

Telegrams: Precision, Sowest, London

Gas Markets and Manufactures

Stock Market Report

(For Stock and Share List, see later page)

At the outset last week a fillip was given to markets when the decision in the American gold clause case became known and the uncertainty over that question had at last been laid to rest. Later, however, business became very humdrum, and an all-round reaction set in. Gilt-edged securities lost some of their former recovery, while most of the other sections, particularly industrials, became irregular. A rise in the price of the commodities led to some activity towards the close in the mining and rubber markets, which were almost the only departments to retain any degree of firmness.

The general depression was to some extent reflected in the Gas Market, for, though the volume of business was maintained, the prices of recorded transactions were in the majority of cases a shade under those of the previous week. In common with other high-class securities the ordinary stocks of our two leading undertakings suffered a relapse; Gas Light units dropping 1s. 3d. to 26s. 9d., and South Metropolitan 3 points to 134½. At the time of writing £15,000 of the former is on offer at 27s., and £5,000 of the latter at 135, at which prices the yields, based on last year's dividends, are attractive at £4 3s.% and £4 5s.% respectively. It will be seen in the Stock and Share List that, apart from a large number of seasonal *ex* div. reductions, the above were the only two reactions of note. In the new issue market the Gas Light 3% debenture stock, recently over-subscribed at 93½, closed on Friday at 2½% discount.

Among debenture stocks on offer at the present time there is a parcel of £50,000 Commercial Gas 3% irredeemable available at 89, free of expense, yielding £3 7s. 5d.%; a full half-year's interest on this stock will be paid in June next.

Current Sales of Gas Products

The London Market for Tar Products.

LONDON, *Feb.* 25.

The Tar Products market remains quiet with current values as follows:

Pitch is slightly weaker, and is stated to be 42s. to 45s. per ton f.o.b.

Creosote, 5d. to 5½d.

Refined tar, 4d. per gallon in bulk at makers' works.

Pure toluole, 2s. 2d. to 2s. 3d.; pure benzole, 1s. 9d. to 1s. 10d.; 95/160 solvent naphtha, 1s. 5d.; and 90/160 pyridine, about 5s. 9d.—all per gallon naked at makers' works.

Tar Products in the Provinces.

Feb. 25

The average prices of gas-works products during the week were: Gas-works tar, 20s. to 25s. Pitch—East Coast, 40s. to 42s. 6d. f.o.b. West Coast—Manchester, Liverpool, Clyde 40s. to 42s. 6d.* Toluole, naked, North, 1s. 8d. to 1s. 9d. Coal-tar crude naphtha, in bulk, North, 6½d. to 6¾d. Solvent naphtha, naked, North, 1s. 4½d. to 1s. 4¾d. Heavy naphtha, North, 9¾d. to 10¾d. Creosote, *ex* works, in bulk, North, liquid and salty, 4⅝d. to 4½d.; low gravity, 4⅜d. to 4½d.; Scotland, 4⅜d. to 4½d. Heavy oils, in bulk, North, 4d. to 4¼d. Carbolic acid, 60's, 1s. 9d. to 1s. 10d. Naphthalene, £10 to £11. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. to 3d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Feb.* 23.

Prices remain steady, but new business is not plentiful. The forward position of road tar is commanding considerable attention at present.

Crude gas-works tar.—Actual value remains at 29s. to 31s. per ton *ex* works in bulk.

Pitch is purely nominal at 43s. to 44s. per ton f.o.b. Glasgow for export and 42s. 6d. per ton *ex* works in bulk for home trade.

Refined tar.—Numerous county schedules are now issued. Makers are still holding for 3d. to 3¼d. per gallon f.o.r. naked.

Creosote oil continues difficult. Available supplies command the following: B.E.S.A. Specification, 4¾d. to 5d. per gallon; low gravity, 4¾d. to 5d. per gallon; and neutral oil, 4⅝d. to 4⅞d. per gallon; all f.o.r. in bulk.

Cresylic acid is quiet, but quotations are well held. Pale, 97/99%, 1s. 3d. to 1s. 4d. per gallon; dark, 97/99%, 1s. 1d. to 1s. 2d. per gallon; and pale, 99/100%, 1s. 4d. to 1s. 5d. per gallon; all *ex* works.

Crude naphtha is on short production. To-day's value is 4¼d. to 4¾d. per gallon, according to quality and district.

Solvent naphtha.—90/160 grade is 1s. 3d. to 1s. 4d. per gallon, and 90/190 heavy is 9d. to 10d. per gallon.

Motor benzole is quiet at 1s. 3d. to 1s. 4d. per gallon *ex* works in bulk.

Pyridines.—90/160 grade is 5s. 6d. to 6s. per gallon, and 90/140 grade 6s. to 6s. 6d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole	0	8½	to	0	9	per gallon at works
Motor ,,	1	2	,,	1	2¾	,, ,, ,,
90% ,,	1	3	,,	1	3½	,, ,, ,,
Pure ,,	1	6½	,,	1	7	,, ,, ,,

Contracts Advertised To-Day

Coal.
Barrow-in-Furness Gas and Water Department. [p. 537.]
Windermere Gas Department. [p. 537.]

Coke.
Carlisle Gas Department. [p. 537.]

Lighting Goods (Mantles, Fittings, Copper Tubes, &c.).
Carlisle Gas Department. [p. 537.]
Hereford Gas Department. [p. 537.]

Main Cocks.
Carlisle Gas Department. [p. 537.]

Meters.
Carlisle Gas Department. [p. 537.]
Hereford Gas Department. [p. 537.]

Oxide of Iron (Spent).
Carlisle Gas Department. [p. 537.]

Pipes, &c.
Carlisle Gas Department. [p. 537.]
Hereford Gas Department. [p. 537.]
Sidmouth Gas Department. [p. 537.]

Stores (Picks, Shovels, Cast-Iron Goods, Oils, &c.).
Carlisle Gas Department. [p. 537.]
Hereford Gas Department. [p. 537.]

Sulphuric Acid.
Carlisle Gas Department. [p. 537.]

New Capital Issues

South Bank and Normanby Gas Light and Coke Company.—Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, are offering for sale by tender on behalf of the Directors of this Company £15,000 of 4% redeemable mortgage debentures and 3,000 £5 4½% preference shares both at a minimum price of issue of par. Tenders must be received by 11 a.m. on Thursday, March 14.

Ewart & Son, Ltd.

In presenting the balance-sheet and profit and loss account for 1934, the Directors of Messrs. Ewart & Son, Ltd., report that the trading of the Company has been fairly well maintained, and that after making full provision for all bad and doubtful debts and contingencies, the net profit earned amounts to £25,843, and is available for distribution. To this falls to be added £12,475—the amount brought forward from last year, making a total of £38,318.

The Directors recommend that the payment of the preference dividend of 16% for the year (less income-tax) be confirmed, and a dividend of 17½% on the ordinary shares for the year be declared and paid (less income-tax).

The Production of Benzole in the Saar, which was 30,000 tons in 1933, is estimated as having increased to nearly 40,000 tons last year. Of the 1934 output, about 30,000 tons were exported to Germany, the balance being used in the Saar itself.

THIS installation of Glover-West Vertical Retorts at the gas works of the Yeadon & Guiseley Gas Company was put into service on December 27th, 1934

The first month's run under normal conditions of the Glover-West plant at Yeadon gave these results:

Coal Carbonized... ... YORKS. GAS NUTS

Total Gas Made ... ...18,104,000 C. FT.

Gas Made per Ton ... 17,060 C. FT.

Calorific Value (*undebenzolized*) **500 B.Th.U./C.FT.**

Therms per Ton ... ... 85·3

West's Steaming Curve ... No. 1 PLUS

More than 360 installations of Glover - West verticals are in service

WEST'S GAS IMPROVEMENT CO., LTD.

LONDON: REGENT HOUSE, KINGSWAY, W.C. 2. 'Phone: Holborn 4108. 'Grams: "Imvertret, Westcent." **MANCHESTER:** ALBION IRONWORKS, MILES PLATTING. 'Phone: Collyhurst 2961. 'Grams: "Stoker, Manchester."

STOCK AND SHARE LIST

Official Quotations on the London and Provincial Stock Exchanges

Issue. £	Share	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations, Feb. 22.	Rise or Fall on Week.	Transactions, Lowest and Highest Prices During the Week.
1,551,868	Stk.	Sept. 10	7	7	Alliance & Dublin Ord. ...	135—145	...	142 7/8
374,000	,,	Dec. 17	4	4	Do. 4 p.c. Deb. ...	90—100	...	98½—99
557,655	,,	Feb. 18	7	7	Barnet Ord. 7 p.c.	167—172*	−3	168
300,000	,,	Oct. 8	1/9 7/8	1/4 1/8	Bombay, Ltd.	30/—32/-	...	...
178,480	Stk.	Feb. 18	9½	9½	Bournemouth sliding scale ...	223—233*	−4	..
550,050	,,	,,	7	7	Do. 7 p.c. max. ...	170—175*	−2	...
439,160	,,	,,	6	6	Do. 6 p.c. Pref. ...	148—153*	−2	152—152½
50,000	,,	Dec. 17	3	3	Do. 3 p.c. Deb. ...	86—91	...	...
262,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	107—112	...	...
335,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	130—135	...	...
357,900	,,	Feb. 18	7½	7½	Brighton, &c., 6 p.c. Con. ...	178—183*	−3	181—182½
649,955	,,	,,	6 3/4	6 3/4	Do. 5 p.c. Con. ...	159—164*	−3	161
205,500	,,	,,	6	6	Do. 6 p.c. B. Pref. ...	145—150*	...	...
1,487,500	,,	Feb. 4	5	5	Bristol, 5 p.c. max.	119½—120½a	−1	..
120,420	,,	Dec. 17	4	4	Do. 1st 4 p.c. Deb. ...	102—104a	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	102—104a	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	122—124a	...	...
855,000	,,	Sept. 24	8	7	British Ord.	174—179	...	174—175
100,000	,,	Dec. 17	7	7	Do. 7 p.c. Pref.	160—165	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	97—102	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	111—116	...	115
100,000	10	22 May '33	6	4	Cape Town, Ltd.	1—3	...	...
100,000	10	6 Nov.'33	4½	4½	Do. 4½ p.c. Pref. ...	1—3	...	...
150,000	Stk.	Dec. 17	4½	4½	Do. 4½ p.c. Deb. ...	88—93	...	90¾
626,860	,,	Jan. 21	6	6	Cardiff Con. Ord.	133—138	...	...
237,860	,,	Dec. 17	5	5	Do. 5 p.c. Red. Deb.	105—110	...	...
157,150	,,	Feb. 4	5	6½	Chester 5 p.c. Ord.	111—116b	...	...
98,936	1	Sept. 24	2/-	2/-	Colombo, Ltd., Ord.	1 1/8—1 7/8	...	...
24,500	1	,,	1/4½	1/4½	Do. 7 p.c. Pref. ...	19/6—21/6	...	...
609,204	1	Sept. 24	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	20/—22/-	...	21/6
296,053	1	,,	1/3·30	1/3·30	Do. 8 p.c. Pref.	25/—27/-	...	26/-
1,775,005	Stk.	Feb. 4	5	6	Commercial Ord.	118—123	−2	120—122
475,000	,,	Dec. 3	3	3	Do. 3 p.c. Deb. ...	88—92	...	...
286,344	,,	Feb. 18	5	5	Do. 5 p.c. Deb. ...	123—128*	−2	...
807,560	,,	Feb. 18	7	7	Croydon sliding scale... ...	165—170*	−2	166
569,590	,,	,,	5	5	Do. max. div.	114—119*	−2	116½
620,385	,,	Dec. 17	5	5	Do. 5 p.c. Deb.	130—135	...	130½
542,270	,,	Feb. 18	7	10	Derby Con.	200—210c*	...	...
55,000	,,	Dec. 17	4	4	Do. 4 p.c. Deb.	100—105c	...	...
239,000	,,	Feb. 4	5	5	East Hull Ord. 5 p.c.	111—116	...	...
181,625	,,	Feb. 4	6	6	East Surrey Ord 5 p.c. ...	138—143	...	...
175,609	,,	Dec. 17	5	5	Do. 5 p.c. Deb. ...	123—128	...	...
1,002,180	,,	Sept. 10	17	15	European, Ltd.	118—123	−2	118—120
19,313,481	,,	Feb. 4	5½	5½	Gas Light & Coke 4 p.c. Ord.	26/3—27/3f	−1·3	26/3—27/9
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	93—97*	...	96—97
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	109—112	...	109½—112
6,102,497	,,	Dec. 3	3	3	Do. 3 p.c. Con. Deb. ...	90—93	−2	90—92½
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	116—119	−2	116—118½
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	116—119	−1	118½—119¼
270,466	,,	Feb. 18	6	6	Harrogate New Cons. ...	138—143*	−2	...
140,000	1	Sept. 24	1/7½	1/7½	Hongkong & China, Ltd. ...	1 7/8—1 7/8	...	...
213,200	Stk.	Feb. 18	6	6	Hornsey Con. 3½ p.c.... ...	135—140*	−2	...
5,600,000	,,	Oct. 22	14	10	Imperial Continental Cap. ...	217—222	...	217½—220
223,130	,,	Jan. 21	3½	3½	Do. 3½ p.c. Red. Debs.	91—96*	...	...
285,242	,,	Feb. 18	8½	8½	Lea Bridge 5 p.c. Ord. ...	187—197*	−3	...
2,167,410	,,	Feb. 18	6	6	Liverpool 5 p.c. Ord.... ...	142—144b*	−3	...
245,500	,,	Dec. 17	5	5	Do. 5 p.c. Red. Pref. ...	105—110b	...	...
306,083	,,	Jan. 16	4	4	Do. 4 p.c. Deb.	104—107b	...	...
165,736	,,	Feb. 18	8	10	Maidstone 5 p.c. Cap. ...	185—195*	−3	...
63,480	,,	Dec. 17	3	3	Do. 3 p.c. Deb. ...	83—88	...	...
75,000	,,	Dec. 3	†10	†10	Malta & Mediterranean, ... Metropolitan (of Melbourne)	205—215	...	...
392,000	—	Oct. 1	5½	5½	5½ p.c. Red. Deb.	102—107	...	104½—105½
231,978	Stk.	Feb. 4	5	5	M. S. Utility "C" Cons. ...	113—118	...	...
818,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	101—106	...	105½
360,075	,,	Dec. 17	4	4	Do. 4 p.c. Deb. ...	102—107	...	...
148,955	,,	,,	5	†5	Do. 5 p.c. Deb. ...	127—132	...	...
125,000	—	Jan. 2	11/8	3½	Do. 3½ p.c. Rd. Rg. Bds.	98—101	...	...
675,000	,,	May 28	†6	†3	Montevideo, Ltd.	55—65	...	55½
2,061,315	,,	Feb. 18	5	5½	Newcastle & Gateshead Con.	26/—27/-df*	−/6	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	105½—107½d	−1½	...
776,706	,,	Dec. 17	3½	3½	Do. 3½ p.c. Deb. ...	100—102d	...	...
277,285	,,	Oct 8	5	5	Do. 5 p.c. Deb. '43 ...	105—107d	...	...
274,000	,,	Feb. 4	5	5	Newport (Mon.) 5 p.c. max....	108—110a	...	...
225,000	,,	Feb. 18	7½	7½	North Middlesex 6 p.c. Con.	172—177*	...	176—177
396,160	,,	Feb. 4	5	5	Northampton 5 p.c. max. ...	105—110	...	...
300,000	,,	Nov. 5	†7	†9	Oriental, Ltd.	170—175	...	172
416,617	,,	Dec. 17	8	8	Plym'th & Stonehouse 5 p.c.	182—187	...	184—185
504,416	,,	Feb. 4	8	8½	Portsm'th Con. Stk. 4 p.c. Std.	182—187	...	185½
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	110—115	...	112—114
114,000	,,	Jan. 21	5	5	Preston 5 p.c. Pref.	108—113	...	...
1,736,968	Stk.	Aug. 27	6	6	Sheffield Cons.	148—150e	...	...
95,000	,,	Jan. 7	4	4	Do. 4 p.c. Deb.	100—104e	...	...
133,201	,,	Feb. 18	8½	5	Shrewsbury 5 p.c. Ord. ...	153—158*	−2	...
90,000	10	May 28	†4	†3	South African	3—4	...	3
927,177	1	Sept. 10	1/2 3/8	1/2 3/8	South East'n Gas Cn. Ld. Ord.	29/—31/-	...	23/1 1/8
736,061	1	,,	-/10 1/2	-/10 1/2	Do, 4½ p.c. Red. Cum. Pref.	22/6—23/6	...	...
450,000	Stk.	Feb. 4	7 4/4	4	Do. 4 p.c. Red. Deb. ...	100—103*	...	...
6,709,895	,,	Feb. 4	5	6½	South Met. Ord.	132—137	−3	132—136½
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf. ...	150—155	...	152½
850,000	,,	,,	4	4	Do. 4 p.c. Irred. Pf. ...	106—109	...	107½—108
1,895,445	,,	Dec. 17	3	3	Do. 3 p.c. Deb. ...	89—92	−2	89½—90½
1,000,000	,,	Jan. 7	5	5	Do. 5 p.c. Red. Deb....	118—121	...	117½
209,820	,,	Feb. 18	8½	8½	South Shields Con.	183—185d	−3	...
1,543,795	,,	Feb. 18	6	6	South Suburban Ord 5 p.c. ...	143—148*	−2	...
512,825	,,	,,	5	5	Do. 5 p.c. Pref. ...	122—127*	−2	...
500,000	,,	,,	4	4	Do. 4 p.c. Pref. ...	108—111*	...	...
868,837	,,	Dec. 17	5	5	Do. 5 p.c. Deb, ...	130—135	+1	132½—133
250,000	,,	,,	4	4	Do. 4 p.c. Deb. ...	106—110	−1½	...
647,740	,,	Feb. 4	5	5	Southampt'n Ord. 5 p.c. max.	116—121	...	117—119
121,275	,,	Dec. 17	4	4	Do. 4 p.c. Deb.	102—107	...	...
350,000	,,	Feb. 4	5½	5½	Swansea 5½ p.c. Red. Pref. ...	113—118	...	...
200,000	,,	Dec. 17	6½	6½	Do. 6½ p.c. Red. Deb. ...	100—105	...	...
1,076,490	,,	Feb. 18	6 3/4	6 3/4	Tottenham and District Ord.	162—167*	−3	163½—166
409,835	,,	,,	5 3/4	5 3/4	Do. 5½ p.c. Pref. ...	131—136*	−2	...
62,235	,,	,,	5	5	Do. 5 p.c. Pref. ...	120—125*	−2	122—124½
199,005	,,	Dec. 3	4	4	Do. 4 p.c. Deb. ...	102—107	...	...
369,774	,,	Feb. 4	7	7	Uxbridge, &c., 5 p.c. ...	166—171	...	168½
108,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	122—127	...	...
1,326,700	,,	Feb. 4	7	7	Wandsworth Consolidated ...	167—172	...	165—168½
1,371,373	,,	,,	5	5	Do. 5 p.c. Pref. ...	125—130	...	125—127½
1,317,964	,,	Dec. 17	5	5	Do. 5 p.c, Deb. ...	132—137	...	135½—135¾
208,300	,,	,,	26/8	4	Do. 4 p.c. Deb. ...	108—113	...	...
158,400	,,	Feb. 18	5	6g	Winchester W.& G. 5 p.c. Con.	118—123*	−2	

Quotations at :—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of stock. *g.*—Paid £3, including 10s. on account of back dividends. * Ex. div. † Paid free of income-tax. ‡ For year.

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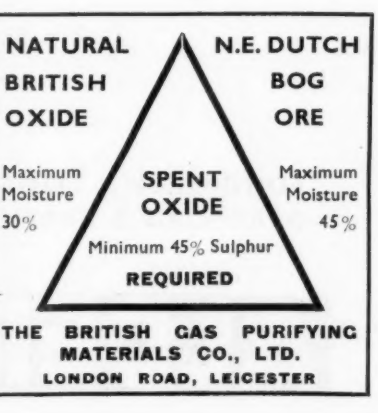

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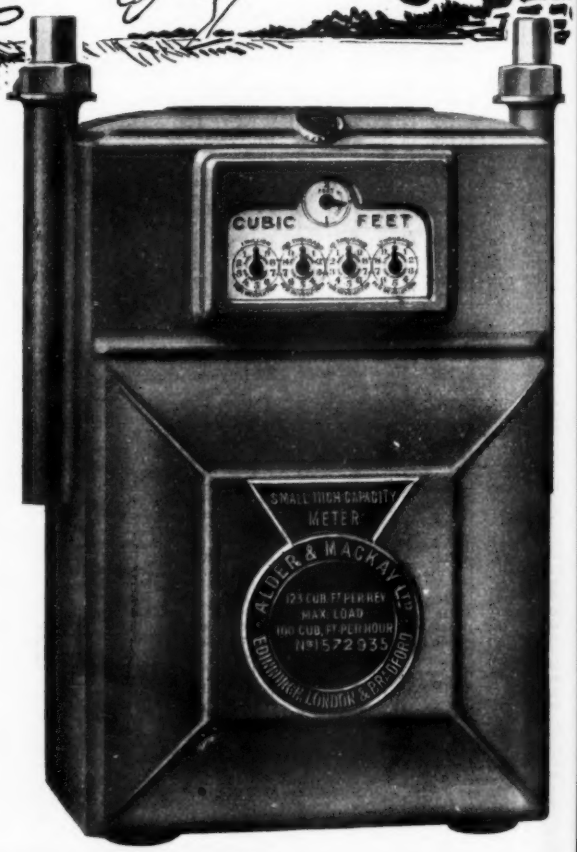

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